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CHARACTERISTICS ASSOCIATED WITH
INFANT FEEDING METHODS IN
ADOLESCENT MOTHERS RECEIVING WIC

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CHARACTERISTICS ASSOCIATED WITH INFANT FEEDING METHODS IN ADOLESCENT MOTHERS RECEIVING WIC

By

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ABSTRACT

CHARACTERISTICS ASSOCIATED WITH
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The purpose of this study was to describe and compare demographic and behavioral variables in a sample of adolescent women receiving WIC program assistance, who breastfed or bottlefed their infants. This study reviewed the WIC program records, and gathered data from a self reported health history form. The sample consisted of 61 adolescent mothers, age 13-21 years. Records were selected to represent equal numbers of breast and bottlefeeding mothers. A higher mean maternal age and education level were associated with adolescent mothers who breastfed compared to adolescent mothers who bottlefed their infants. Breastfeeding tended to be positively associated with a higher income level, being married, and drinking more than one alcohol containing drink per week, although these associations were not statistically significant. Implications for Advanced Practice Nurses include assessing, educating, managing, and researching adolescent mothers and their method of infant feeding.

This thesis is dedicated to Ed Hesseltine, who is my husband, and my best friend. Thank-you for all your love and support throughout my graduate school education, and the writing of my thesis. You are the most wonderful man in the world, and I am glad that you are in my life.

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INTRODUCTION

The purpose of this study was to describe and compare demographic and behavioral variables in a sample of adolescent women receiving the Women, Infants, and Children (AC) program who breastfed or bottlefed their infants. The AC program is a special supplemental food program for women, infants, and children created by Public Law 92-433 and funded by the United States Department of Agriculture through the Michigan Department of Public Health (MI Dept. Of Public Health, 1990). To be eligible for the AC program participants must be residents in the state of Michigan, must be income eligible, and/or at a nutritional health risk. Income eligible is defined as at or below 185% of Federal Poverty Income Guidelines, or on Medicaid or Food Stamps. Clinic staff in local agencies may also determine eligibility if the woman, infant, or child has a nutrition and/or health risk (Michigan Department of Public Health, 1990).

This study reviewed AC program records, and obtained demographic and behavioral information from a self reported history form that is filled out approximately 2-6 weeks post-partum. The breastfeeding adolescent mothers were described and compared with randomly chosen adolescent bottle-feeding mothers.

Statement of the Problem

The issue of breastfeeding versus bottlefeeding has been a topic of discussion and research for many years. In

1990, virtually all of U.S. mothers breastfed their infants (Saunders, Carroll, & Johnson, 1990). From the 1940's to the 1970's, steady declines were noted in the number of women who breastfed their infants. The decline was mainly among the young, black, poor, and less educated women (Saunders et al., 1990). Since the 1970's breastfeeding has increased in popularity as the preferred infant feeding method, but younger, African American, economically disadvantaged, and less educated women have been the slowest to return to breastfeeding (Joffe & Radius, 1987). The number of newborns who were breastfed nearly doubled in the United States between 1965 and 1982, when breastfeeding peaked at sixty-two percent. In 1990, the breastfeeding percentages were substantially higher among whites (65%), than African-Americans (33%), higher among older married women with some college education (73%), than those not completing high school (32%), and also less prevalent among lower income women (28%) (Jacobson, Jacobson, & Frye, 1991). National studies have demonstrated a decreasing trend in breastfeeding rates among new mothers under the age of 20 years with 39.3% of adolescent mothers reporting that they breastfed their infants in 1983, 36.8% of adolescent mothers in 1984, and only 30.2% of adolescent mothers in 1989 (Lizarrago, Maehr, Wingard, & Felice, 1992).

Since 1978, The World Health Organization and Health and Welfare Canada have made the promotion of breastfeeding a primary goal (Milligan, McGovern, Minelli, Edwards, &

Warrers, 1993). Healthy People 2000 has a goal to increase to at least 75%, the proportion of mothers who breastfeed their babies in early postpartum and to at least 50% the proportion who continue breastfeeding until their babies are 5 to 6 months old (Public Health Service, 1992). While the rates of those starting to breastfeed have increased since the recommendations were made from 38% to as high as 80% in many areas, the goal of breastfeeding for all babies for at least six months has still not been attained (Milligan et al., 1993).

The recommendations by health care providers, health policy specialists, and the American Academy of Pediatrics indicates that breast milk is the preferred source of nutrients during the first 4-6 months of an infant's life (Cronenwett, Stukel, Kearney, Barrett, Covington, Monte, Reinhardt, & Rippe, 1992). The WIC program has adapted its focus to encourage women to breastfeed. In 1993, the United States Department of Agriculture (USDA) authorized an enhanced food package for exclusively breastfeeding women on the WIC program giving these mothers additional food items as an incentive to breast-feed. The WIC program has chosen to promote breastfeeding by supplying lactation instructors, peer counselors, and pre-natal breastfeeding instruction along with the extra food incentives for breastfeeding mothers. The WIC staff is working with adolescent mothers to increase the breastfeeding rates, and promote it as the preferred source of nutrients for an infant. Although half

or more of infants in the United States are breastfed at birth, at least 60% are completely formula fed by the age of 2 months, and over 85% are taking formula or regular cow's milk by the age of 1 year (Snow & Fry, 1990). Recent studies have shown that there continues to be a rapid decline in breastfeeding duration, with only 30% of infants being breastfed for 6 months, and a median age of stopping at 3 months (Milligan et al., 1993). These declining rates are in spite of research showing that infants benefit from breastfeeding by demonstrating decreased rates of gastrointestinal disease, illness, and hospitalization (Dix, 1991).

Adolescent breastfeeding is best understood in the context of adolescent pregnancy and adolescent health behaviors. Since 1974, more than 1 million adolescents each year have become pregnant (Morris, Warren, & Aral, 1993). An estimated 87% of pregnancies among never-married adolescents are unintended (Morris et al., 1993). These adolescent women, particularly those from low income backgrounds are among the least likely to choose breastfeeding as their infant feeding method (Morris et al., 1993).

Adolescence is the time for risks and health compromising behaviors. Certain lifestyle practices may compromise the fetus during pregnancy and affect lactation following delivery. Of particular concern are tobacco and alcohol consumption, both of which will be present in breast

milk if consumed by the mother, and may have a detrimental effect on the nursing baby. Alcohol consumption and tobacco use have been reported as the most common health-risk behaviors in adolescents (Kulbok, Earls, & Montgomery, 1988).

Study Purpose

The purpose of this study was to describe and compare demographic and behavioral characteristics in a sample of adolescent women receiving WIC assistance who breastfed or bottlefed their infants.

Research Question

Are there differences with respect to the demographic variables of maternal age, family income, education, and martial status, and the behavioral variables of alcohol and tobacco use in adolescent mothers receiving the WIC program who breastfeed or bottlefeed their infants?

REVIEW OF LITERATURE

An extensive review of the literature was done and is discussed in the following section. The literature review of the demographic variables of maternal age, family income, education, and marital status are looked at first and then the literature on behavioral variables of tobacco use and alcohol use are reviewed.

Demographic Empirical Evidence

Despite dramatic gains in breastfeeding among middle and upper class women, most low income and less educated adolescents continue to bottlefeed their infants. Since

1985, breastfeeding incidence and duration rates have declined in all groups (Ryan, Rush, Krieger, & Lewandowski, 1991). Studies show a variety of reasons for the decreased rates of breastfeeding in low income, poorly educated, and adolescent women.

In a study done by Lizarraga et al. (1992), 64 primiparous adolescents, mostly Hispanic females, ages 14-18, were studied to assess factors which differentiated those who chose to breastfeed for those that chose to bottlefeed. The study found that those adolescents who intended to breastfeed were significantly older, with a mean age of 17.2 for the breast-feeding adolescents, and a mean age of 16.3 for the bottlefeeding adolescents. The adolescent mothers who breastfeed were also less likely to have been in school during the pregnancy, and were more often married than unmarried. However, neither living arrangement nor presence of a postpartum support system were associated with the intention to breastfeed (Lizarrago et al., 1992).

Baisch, Fox, Whitten, & Pajewski (1989) studied two groups of low income adolescents, with the adolescent sample totaling 127. The study assessed breastfeeding attitudes and practices of low income adolescent mothers, and one group of low income adult women, and compared their breastfeeding rates. The breastfeeding rates for the two adolescent samples was 16.7% and 32.4% respectively; while it was 35.4% for the adult sample. In a national study by

Martinez and Krieger (1984) mothers under the age of 20 breastfed at a rate of 36.8% compared with the rate of 66.6% for mothers aged 25-29.

Grossman, Larson-Alexander, Fitzsimmons, & Cordero (1989) studied 2,124 low income, low risk, mothers and found that the mothers who breastfed their infants were older, had more education, and were more often married. Martinez and Krieger (1985) found that mothers with a family income of less than $7,000/year breastfed at a rate of 36.6%, compared to the 71.8% rate of women with a family income of at least $25,000. Grossman, Fitzsimmons, Larsen-Alexander, Sachs, & Harter (1990) interviewed 220 mothers, of which 116 were breastfeeding, and found the breastfeeding women to be older, more educated, more affluent, and more often married.

Jacobson, Jacobson, and Frye (1991) examined two independent lower-income samples of first time mothers over the age of 17: 137 were black inner-city mothers and 50 were predominantly white mothers. The low income sample found that the majority were unmarried, however 41.9% listed the baby's father as their major support person. Support is important in breastfeeding decisions as Bryant, Coreil, D'Angelo, Bailey, and Lazarov (1992), in 35 focus group interviews found that the support person was identified as having the greatest influence on the mothers' infant feeding decision.

In a study by Kurinij, Shiono, and Rhoads (1988) of 1,179 healthy African American and white women 18 years or

older, the incidence of breastfeeding was most dependent on the maternal education. The breastfeeding rate was higher for mothers with some college education (73%) than those not completing high school (32%) (Jacobson et al., 1991; Kurinij et al., 1988). The odds for breastfeeding were found to be 2.6 to 5.2 times higher for women with a college an/or graduate school education, compared with women with a high school education or less (Kurinij et al., 1988). Rassin, Richardson, and Baranowski (1984) compared breastfeeding rates in 1969 and 1980 and found increases in breastfeeding rates in both black and white women with increased levels of education. However, white women had a higher incidence of breastfeeding within each educational level. In a survey study of 254 pregnant adolescents, Joffe & Radius (1987) found that the increased education level of the adolescent mother was beneficial in increasing breastfeeding rates.

Behavioral Empirical Evidence

Cigarette smoking has particular appeal to the adolescent. In an interview of 2,787 adolescents age 13-18 years, Kulbok, Earls, and Montgomery (1988), report that 21% used tobacco every day for a month or more in the past year. The tobacco use among adolescent males has begun to plateau, but there has been a rise in adolescent female's tobacco use. Approximately 30% of 13-17 year old females reported that they smoked cigarettes, with almost half reporting that they smoked at least a pack a day (Blum, 1987; Kulbock et al., 1988). In a recent study by the National Center for

Health Statistics, 10,645 youths were interviewed about risky health behavior. The results of this study supported the results of other surveys: a vast number of adolescents smoke and drank. This data was taken one step further, reporting that adolescents who smoke are between 2 and 17 times more likely than nonsmokers to have a variety of risky health behaviors (Neergaard, 1995).

Nicotine metabolites have been found in the urine of breastfed infants of smoking mothers, or when passive smoke exists. Heavy smoking (more than 10 cigarettes per day) has been associated with decreased production and ejection of milk, infant irritability, and poor sucking. For these reasons breastfeeding mothers should be encouraged to stop or reduce smoking (Milligan et al., 1993).

Alcohol consumption has been reported as the most common health-risk behavior in the adolescent population with the amount of alcohol consumed steadily increasing (Kulbok et al., 1988). Nearly all graduating high school seniors in America report having had a drink, with most indicating having had his/her first drink by the age of 13 years (Blum, 1987). Kulbok et al. (1988) report that 30% of adolescents consumed alcohol at least once per month.

The negative effect of alcohol on the breastfeeding adolescent mother are unknown, but research suggests that the infant could be affected by exposure to alcohol in the mother's breast milk. In a study by Little, Anderson, Ervin, Worthington-Roberts, & Clarren (1989), 400 infants

were studied, investigating the relationship of the mother's use of alcohol during breast-feeding to the infant's development at one year. This study found that the alcohol that was ingested by the infant had a slight, but significant, detrimental effect on motor development, but not on mental development.

In summary there is a high percentage of adolescents who use alcohol and tobacco in America, and with the high pregnancy rate there will inevitably be adolescent mother's who drink and/or smoke. These behavioral habits may affect the adolescent mother's decision about whether or not to breastfeed her infant. The adolescent mother may want to continue drinking and/or smoking after the infant is born, but may not want the infant to consume the nicotine or alcohol via breast milk. The literature is sparse in substantiating the behavioral habits of alcohol and tobacco use as determining factor in the decision of adolescent mothers to breastfeed or bottlefeed their infants.

Summary

The majority of studies have characterized breastfeeding mothers by age, education, race, and socioeconomic status, but less information is available in comparing demographic data and behavioral variables of alcohol and tobacco use in adolescents that breastfeed or bottlefeed their infants.

The literature on the adolescent mother and breastfeeding is limited in the studies published, the

variety of variables studied, and the generalizability of the studies. The majority of the studies on breastfeeding adolescent mothers have used smaller sample sizes, making it very difficult to generalize the studies to a broader population based on the decreased precision of estimate. The studies have most often been descriptive studies attempting to describe the population of mothers that breastfed their infant, with little information comparing breastfeeding and bottlefeeding adolescent mothers. The literature has also been limited in studying the WIC program population. This is particularly relevant since 1993, because the WIC program has placed a heavier emphasis on the promotion of breastfeeding as the best preferred infant feeding method.

This study will help fill a gap in the literature by comparing both demographic and behavioral characteristics in adolescent mothers that breastfeed or bottlefeed their infants. In addition, these data were gathered after new attempts had been initiated by the WIC program to increase bottlefeeding in adolescent mothers. This study is important too because it will provide health care providers with valuable information on the characteristics of adolescent mothers who may choose to breastfeed or bottlefeed their infants.

CONCEPTUAL DEFINITION OF VARIABLES

The three variables in this study that require conceptual definition include: 1) demographic variables; 2)

behavioral variables; and 3) infant feeding method. The demographic variables are vital statistics about an adolescent mother which included: maternal age, family income, education, and marital status. The behavioral variables are defined as health choices made by the adolescent mother and included: alcohol use and tobacco use. The infant feeding methods include breastfeeding and bottlefeeding.

Demographic Variables

Demographic data are significant because they give indirect information about an individual's role in society including information about developmental stage, lifestyle, values, problem solving ability, and social support. The characteristics of maternal age, income, education, and marital status are the variables that may give us that information, and will be discussed in this section.

Age

Conceptually, age is defined for adolescents as a critical time period of biological and cognitive changes. Erikson's developmental stage of adolescence is defined as being between the ages of 13 and 21. Adolescence is the time in which the developmental crisis of identity formation vs. Identity diffusion is apparent. Erickson's developmental stage of adolescence consists of three age categories: early adolescence, middle adolescence, and late adolescence (Block & Nolan, 1986).

The early adolescent period (approximately 11-14 years) is characterized by growing and maturing, ending, on the average at age 14 for females. The major concerns involve the normalcy of physical development and the pre-occupation with body changes and function (Stewart, 1987). The early adolescent age mother may not view her breasts as a natural or normal means for feeding, making her less likely to breastfeed (Maehr, Lizarraga, Wingard, & Felice, 1993).

The middle adolescent period (approximately age 15-17 years) is characterized by puberty and stabilization of body image. At this age, experimentation of new behaviors is apparent, with the major influences from the peer group (Stewart, 1987). During this developmental stage, the adolescent may not breastfeed because of the lack of peer support, or experimentation with alcohol and/or cigarettes.

The late adolescent period (approximately age 18-21) is characterized by the development of an individual's intellectual and functional identity, and the establishment of individual relationships that are based on mutual caring and commitment (Stewart, 1987). In the process of maturing intellectually and functionally, the older adolescent may utilize breastfeeding more often than adolescents in the early or middle period. The ability to establish relationships based on caring and commitment may potentially help the older adolescent to better focus on the needs of an infant. The older adolescent may also better appreciate the

benefits that breastfeeding offers to both herself and her infant.

Income

Income is conceptually defined as the amount of money brought into the household by all family members living in that household. Income is considered a proxy variable measuring the adolescent mother's lifestyle and resources. Lifestyle is a way of living, or a way of conducting oneself related to the amount of resources available, including the aid or financial support that is available to the family. Income can be measured in numbers making it easier to quantify, thus being able to generalize the lifestyle and financial resources available to the adolescent mother.

Education

The third demographic characteristic of education is conceptually defined as the knowledge and skills gained from instruction and/or training. It is also a proxy variable in the assessment of problem solving ability. Education gives the adolescent mother the tools necessary to evaluate options, problem solve, and make a decision based on the information available. It has been shown in many studies that higher educational attainment by the mother can positively influence her decision to breastfeed her infant.

Marital Status

Marital status is being utilized as a proxy variable for social support. Social support for the breastfeeding role is defined as a provision of support. Social support

consists of being accepted, loved, valued, and needed for oneself and not for what one can do for others (Pender, 1987). Social support is considered to be ongoing throughout life. Marriage is a type of social support consisting of a man and a women living together as husband and wife, with the ability to love, respect, and value each other as individuals. Marriage is not the only type of social support for the adolescent mother, as she may not be married yet has the support of a partner, the father of the baby, or some other support system. The adolescent mother seeks social support in her decision to breastfeed, and marriage may represent that important source of positive social support to the adolescent mother in deciding and continuing to breastfeed. However, the social support by the partner may also be negative, because not all males view breastfeeding as beneficial to the infant. The male partner may not wish to share the adolescent mother's breast with the infant or he may be embarrassed that the adolescent mother is bearing her breast during the feeding process. Positive and negative support were not measured for this study so marital status will be assessed as proxy variable for support system.

Behavioral Variables

The two behavioral characteristics that were defined are tobacco use and alcohol use. These characteristics constitute health behaviors and are two of the greatest indicators of health risks in adolescents. Drinking and

smoking are also activities that most adolescents will try and may continue because adolescence tends to be a period of risk taking and peer pressure.

Tobacco use is defined as smoking cigarettes on a daily basis and is an indicator of health behaviors and choices of the adolescent. The health behavior of cigarette smoking could decrease the number of adolescents that breastfeed their infants due to them not wanting to expose their infants to the nicotine metabolite excretion in the breast milk and decreased milk production. The assumption, then, is that adolescent mothers may not breastfeed because they smoke cigarettes and realize smoking's ill effects on the infant.

Alcohol use was defined as the consumption of any drink containing ethyl alcohol, consisting of any type of liquor, per week. Alcohol use has been reported as the most common health-risk behavior in the adolescent population, and it is another indicator of health behaviors and choices of the adolescent. Alcohol consumption has not been studied as a characteristic of adolescent mothers that breastfeed or bottlefeed their infants. It can be assumed, however, that the need or want to consume alcoholic beverages may decrease the number of adolescent mothers that breastfeed, due to the alcohol excretion in the breast milk and the mothers wish to not expose their infant to this.

Infant Feeding Method

The American College of Obstetrician and Gynecologists define breastfeeding as having options. The options include: 1) Breastfeeding with no bottles for 6 months; 2) breastfeeding for a short time (6 weeks to three months) and then bottlefeeding; 3) breastfeeding; and 4) combining breastfeeding and bottlefeeding a few times a day (ACOG, 1990). This study defines breastfeeding as any amount of breastfeeding during the first six weeks post-partum, and bottlefeeding as being fed exclusively by bottle during the first six weeks post-partum, without any breastfeeding.

THEORETICAL FRAMEWORK

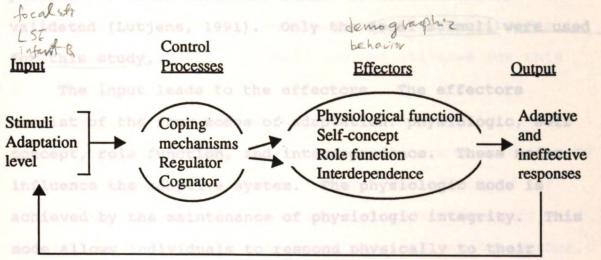
Definition of the Theory

This study will use Roy's Adaptation Model to describe the characteristics of adolescent mothers who breastfeed or bottlefeed their infants. This study is based on Roy's theory of the person as an adaptive system consisting of input, effectors, and output (Roy, 1984). This study used Roy's Adaptation Model to assess the demographic and behavioral characteristics of the adolescent mother that may be associated with breastfeeding or bottlefeeding.

Theoretical Framework

Roy's adaptation model describes the environment as being comprised of external and internal stimuli that act as stressors. The stimuli serve as the input to the person. The input can consist of focal, contextual, and residual stimuli (See Figure 1). The focal stimuli are the provoking

Figure 1. The Person as an Adaptive System



Roy, C. (1984). Introduction to Nursing: An Adaptation Model (p. 30).

situations or events immediately confronting the person. The contextual stimuli are all other stimuli present in the situation, or surrounding the event, that can contribute to the effect of the stimuli. The residual stimuli are vague, general, and ambiguous factors that may be affecting a person, but their influence cannot be ascertained or validated (Lutjens, 1991). Only the focal stimuli were used for this study.

The input leads to the effectors. The effectors consist of the four modes of adaptation: physiologic, self concept, role function, and interdependence. These modes influence the adaptive system. The physiologic mode is achieved by the maintenance of physiologic integrity. This mode allows individuals to respond physically to their environment. The role function mode is a set of expectations of individuals toward each other, consisting of primary, secondary, and tertiary roles. The interdependence mode is a social adaptive mode which includes the close relationships of people involving the willingness and ability to love, respect, and value others. The self concept mode is related to the need for psychic integrity including perceptions of physical and personal selves (Roy, 1987) (See Figure 1).

The effectors then lead to the output which consists of the adaptive or maladaptive responses of the individual. The level of adaptation represents the person's ability to respond to the environment. People are the active

participants interacting with the input and the effectors to form the output, an adaptive or maladaptive response.

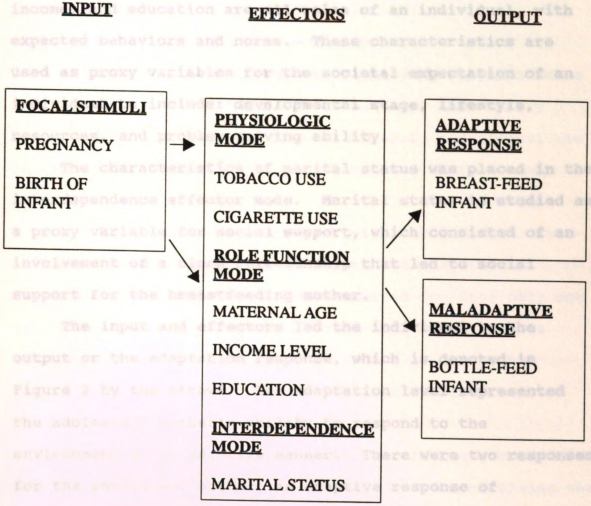
Linkage of Study Variables

The input for this study consisted of the focal stimuli, which were defined as the pregnancy of the adolescent and birth of the infant. The focal stimuli are defined as the input that confronts the adolescent. The contextual and residual stimuli are not utilized for this study (See Figure 2).

The input of the pregnancy and birth of an infant led to the effectors, which are denoted in Figure 2 by the arrow going from the input to the effector. The effectors for this study included the demographic characteristics of maternal age, family income, education, and marital status, and the behavioral variables of alcohol use and tobacco use. These characteristics were placed under the physiologic, role function, and interdependence modes. The self concept mode was not utilized.

The physiologic effector mode consisted of the characteristics of alcohol use and tobacco use. These were placed within this mode because alcohol and cigarette smoking have been shown in the literature to be related to decreased physiologic integrity. Drinking alcohol and smoking cigarettes physiologically change the amount and composition of the adolescent mother's breast milk. Alcohol and nicotine metabolites excreted in the breast milk alter physiologic integrity.

Figure 2. Linkage of Study Variables to Roy's Adaptation Model.



Adapted from Roy, Sr. C. Introduction to Nursing: An Adaptation Model, 2nd ed. englewood Cliffs, NJ: Prentice-Hall, Inc. 1984.

The characteristics of maternal age, family income, and education are placed in the role function effector mode. All people in society have roles based on expected behaviors and norms. The characteristics of maternal age, family income, and education are all roles of an individual, with expected behaviors and norms. These characteristics are used as proxy variables for the societal expectation of an individual to include: developmental stage, lifestyle, resources, and problem solving ability.

The characteristics of marital status was placed in the interdependence effector mode. Marital status is studied as a proxy variable for social support, which consisted of an involvement of a close relationship that led to social support for the breastfeeding mother.

The input and effectors led the individual to the output or the adaptation response, which is denoted in Figure 2 by the arrows. The adaptation level represented the adolescent mother's ability to respond to the environment in an adaptive manner. There were two responses for the adolescent mother: an adaptive response of breastfeeding, or a maladaptive response of bottlefeeding. Breastfeeding was chosen as the adaptive response because it is cited in the literature as the best and preferred infant feeding method.

Roy's Adaptation Model, which was re-defined for this study, was used to describe the adolescent mother's output of an adaptive response of breastfeeding, or a maladaptive

response of bottlefeeding. The adaptation response was based on the input of pregnancy and birth of an infant, and the effectors consisting of the demographic and behavioral characteristics of the adolescent mother.

METHODS

Research Design

The design of this study was a descriptive comparative analysis of the characteristics of maternal age, family income, education, marital status, tobacco, and alcohol use in adolescent mothers who breastfeed or bottlefeed their infants.

This was a non-experimental, retrospective, and cross-sectional study, because it described and compared characteristics that had already occurred and used only one time frame. The data were collected from chart records obtained by the WIC program staff from a self reported health history at a 2 to 6 week post-partum time frame.

Sample

The sample for this study consisted of the records of adolescent mothers, aged 13-21 years, who were receiving the Women, Infants, and Children (WIC) program at The Corner Health Center in Ypsilanti, MI. This study included 61 subjects, with 31 in the breastfeeding sample, and 30 in the bottlefeeding sample. The adolescent mothers' records were eligible for inclusion in the sample if the mother delivered a full-term baby (38-40 weeks gestation) without any serious anomalies. The breastfeeding group consisted of adolescent

mothers who had done any amount of breastfeeding during the first six weeks postpartum. The bottlefeeding sample were eligible for inclusion if the adolescent mothers exclusively bottlefed their infants for the first six weeks postpartum. The first 30 breastfeeding adolescent mothers who met the sample criteria were selected starting in March, 1995 and going back one year. The bottlefeeding sample was selected randomly over the same time frame until an equal number of records were obtained to match the breastfeeding group.

Operational Definition

The three concepts that need an operational definition are: infant feeding method, demographic variables and behavioral variables. The infant feeding method is defined as breastfeeding or bottlefeeding an infant. Breastfeeding is defined as any amount of breastfeeding during 2 to 6 weeks post-partum. Bottlefeeding is defined as exclusively bottlefeeding without any supplemental breastfeeding.

The self reported demographic variables including the age of the adolescent mother, income level, education, and marital status. The demographic variables were measured at 2-6 week post delivery of the infant and gathered from the self reported health history as: 1) Age, rounded to the nearest year, and in subsequent analysis placed in one of three categories consisting of: the young adolescent (age 13-14 years), the middle adolescent (age 15-17 years), and the older adolescent (age 18-20 years); 2) Education, defined as the number of years of school completed, and

later placed in two groups: less than a high school education, and high school education or greater; 3) Marital status, defined as either married or unmarried, with single, divorced, or widowed under the unmarried category; and 4) income, defined as the family income, to the nearest dollar amount, and later placed into one of three categories: less than $5,000, $5,000-10,000, or greater than $10,000.

The self reported behavioral variables included alcohol use and tobacco use. Alcohol use was categorized into two groups, nondrinkers (no consumption of alcohol per week), and drinkers (one or more drinks per week). Tobacco use was categorized into non-smokers (no cigarettes smoked per day) and smokers (one or more cigarettes per day).

Procedure

The data were collected from the self reported demographic and health history in the chart records by the WIC program staff at the Corner Health Center in Ypsilanti, MI and was given to this researcher without any identifiers attached. The data consisted of the information obtained from a self reported health history form on the client records at two to six weeks post-partum.

Protection of Human Rights

The records used for this study were obtained from the self reported health history form in the chart records, so the risk to the subjects was minimal to none. The names and other identifiers of the subjects were excluded from the data obtained, so there were no identifying factors for the

sample. A number was assigned to the subjects by the researcher beginning at 01 and going through the number of subjects in the study, ensuring confidentiality of the individuals. Results of the research were made available to the WIC program and to the Corner Health Center. The proposal was approved by Michigan State University Committee on Research Involving Human Subjects (UCRIHS) prior to the analysis of data (See Appendix A).

Limitations to the Study

This research was not without limitations. First, a non-probability convenience sample was used and therefore it may not be generalized to all adolescent mothers. Second, the data was completed with a small sample size which also limits the power of the study and generalizability of the results. Third, the WIC data set is limited in the amount and the availability of information to be obtained. One problem that occurred during data collection was that the amount of breastfeeding was missing from the data making it impossible to categorize the breastfeeding sample by the amount of breastfeeding, which was originally planned to be a descriptive component. There was also a decreased variability in age and income based on the age of the clients that receive care at The Corner Health Center and the WIC program income criteria, which made it difficult to show differences. Lastly, the data was self reported by the adolescents, and the information was not validated by any other sources. These are all recognized as limitations.

Data Analysis

The data analysis was done using the SPSS computer program. The variables were described by frequencies, percentages, means, standard deviations, and ranges. The tests that were used to compare the demographic and behavioral variables of the breastfeeding and bottlefeeding mothers were a comparison of means (t-tests), and Chi-square analysis. The means are continuous variables that are tested by the t-test and the categorical variables are tested by Chi-Square analyses.

RESULTS

Sample Description

Table 1 describes the total sample of adolescent mothers. There were 31 breastfeeding adolescent mothers, and 30 bottlefeeding adolescent mothers (total n=61). One bottlefeeding adolescent mother was excluded because of missing data, which decrease the bottlefeeding sample number. The majority of the sample (67.3%) were white, 36.1% were Black, and 1.6% were Hispanic. The mean maternal age for the total sample was 18.78 years. The mean education level in grades of school completed was 10.72, and the mean family income per year for the sample was $6,190. The majority of the mothers were unmarried (90.2%), with only 9.8% of the sample in the married category. About half of the mothers (55.7%) had one pregnancy, while the other half of the sample had two or more pregnancies. About three quarters of the mothers (75.4%) had one live delivery, while

the rest had 2-3 live deliveries. The mean alcohol use was less than one drink/week, and the mean cigarette use was less than four cigarettes per day.

As shown in Table 2 there was one early adolescent (1.6%), twenty-two middle adolescents (36.2%), and thirty-seven late adolescents (62.2%). The majority of mothers (67.2%) had less than a high school education, while 32.8% of the mothers had a high school or greater education. An interesting finding to note is that only about half of the late adolescent mothers (age 18-21) had completed a high school education or above. The majority of the sample (62.3%) had a family income of less than $5,000. The majority of the mothers (78.7%) reported that they drank one or more drinks per week. The majority of mothers reported that they were nonsmokers (63.9%).

The frequency, means, standard deviations, and t-values of the breastfeeding and bottlefeeding adolescent mothers are presented in Table 3. A t-test was done to test the significance of a difference in means for the breastfeeding and bottlefeeding adolescent mothers. The one-tailed t-tests, using a P=.05, were done using the variables of maternal age, education level, family income, alcohol use, and tobacco use. The differences in age and education between the breastfeeding and bottlefeeding adolescent mother were statistically significant. No other statistically significant differences were found between breastfeeding and bottlefeeding mother.

Table 1

Means and Standard Deviation of Demographic and Behavioral Variables (n=61

Variable	Mean	SD	Range
Maternal Age	18.8	1.59	14-21
Education	10.7	1.47	7-15
Family Income	6,190.10	6,042	0-24,892
Pregnancies	1.59	.82	1-5
Deliveries	1.28	.52	1-3
Alcohol Use	.78	2.28	0-8
Cigarette Use	3.7	6.29	1-20

Table 2

Frequency and Percent of Demographic and Behavioral Variables (n=61)

Variable	Number	Percent
Maternal Age		
Early Adolescent	1	1.6
Middle Adolescent	13	21.3
Late Adolescent	47	62.2
Education Level		
Less than high school	41	67.2
High school or above	20	32.8
Family Income		
Less than $5,000	38	62.3
$5,000-$10,000	11	18.0
Above $10,000	12	19.7
Marital Status		
Unmarried	55	90.2
Married	6	9.8
Pregnancies		
one	34	55.8
more than one	27	44.2

Table 2 (Cont.)

Variable	Number	Percent
Deliveries		
one	46	75.4
more than one	15	24.6
Alcohol Use		
nondrinkers	48	78.7
drinkers	13	21.3
Cigarette Use		
nonsmokers	39	63.9
smokers	22	36.1

Table 3

Means and Standard Deviation of Behavioral and Demographic Characteristics in the Breastfeeding (n=31) and Bottlefeeding (n=30) Adolescent Mothers (total n=61)

Variable	Mean	SD	t-value
Maternal Age			
Breastfeed	19.23	1.407	2.26*
Bottlefeed	18.33	1.668	
Education Level			
Breastfeed	11.16	1.344	2.47*
Bottlefeed	10.27	1.484	
Family Income			
Breastfeed	$6,434.52	$1,153.27	.32
Bottlefeed	$5,937.63	$1,044.97	
Alcohol Use			
Breastfeed	.84	1.77	.19
Bottlefeed	.73	2.74	
Cigarette Use			
Breastfeed	3.52	6.56	-.22
Bottlefeed	3.87	6.10	

*P<.05

As shown in Table 4, follow-up Chi Square Analyses were done to measure the level of education (categories again were less than high school education, and high school education or greater) with the age of the adolescents to analyze if education and age were related since the means were both statistically significant. The outcome was statistically significant (P=.01), showing that an increased education level was associated with the older or late adolescent age, which is an expected finding. Recall however, that many older adolescents (about half) hadn't completed high school.

As shown in Table 5, Chi Square tests were performed to assess the effects of maternal age (only the middle and late adolescent categories, the early adolescent age was not analyzed because there was only one person in that category), income, education, marital status, alcohol use, and tobacco use, on the adolescent mothers method of infant feeding. There were no statistically significant differences found, however there were some interesting trends in the data. There were more late adolescents in the breastfeeding group than in the bottlefeeding group, with fewer middle adolescents in the breastfeeding group. The educational level reveals more of the breastfeeding sample with a high school or above education. There are also more married and nonsmoking adolescent mothers in the breastfeeding sample. An interesting finding was that there were slightly more adolescent mothers who drank one or more

Table 4

Cross Tabulation of the Level of Education and Maternal Age (n=61)

	< High School		High School or >	
Maternal Age	Number	Percent	Number	Percent
Early Adolescent	1	1.6	0	0
Middle Adolescent	13	21.3	0	0
Late Adolescent	27	44.3	20	32.8

X^2 (2, N=61)=8.86, p <.05

Table 5

Chi-Square Analysis of the Demographic and Behavioral Variables Between Breastfeeding and Bottlefeeding Adolescent Mothers (n=61)

	Breastfeeding		Bottlefeeding	
	Number	Percent	Number	Percent
Maternal Age				
Middle Adolescent	5	16.1	8	26.7
Late Adolescent	26	83.9	21	70.0
	X^2 (2, N=61)=1.16, p=.28			
Income				
< $5,000	20	64.5	18	60.0
$5,000-$10,000	4	12.9	7	23.3
> $10,000	7	22.6	5	16.7
	X^2 (1, N=61)=1.24, p=.53			
Education				
< high school	18	58.1	23	76.7
high school or >	13	41.9	7	23.3
	X^2 (1, N=61)=2.39, p=.12			
Marital Status				
Unmarried	26	83.9	29	96.7
Married	5	16.1	1	3.3
	X^2 (1, N=61)=2.81, p=.09			
Alcohol Use				
Nondrinker	23	74.2	25	83.3
Drinker	8	25.8	5	16.7
	X^2 (1, N=61)=.76, p=.38			
Tobacco Use				
Nonsmoker	21	67.7	18	60.0
Smoker	10	32.3	12	40.0
	X^2 (1, N=61)=.53, p=.53			

drinks per week in the breastfeeding group than in the bottlefeeding group.

Interpretation of Findings

In the sample of adolescent mothers (n=61) the mean maternal age of the breastfeeding sample was 19.23, and the mean maternal age of the bottlefeeding sample was 18.33. Although these age differences were statistically significant, from a clinical standpoint, both were from the same late adolescent age category. These findings are consistent with many of the studies in the literature (Baisch et al., 1989; Bryant et al., 1992; Jacobson et al., 1991; Kurinij et al., 1988; Lizarrago et al., 1992) which show increased maternal age in adolescents to be associated with breastfeeding. Follow up Chi-square analysis by category was not statistically significant.

Increased educational level was also found to be associated with the breastfeeding adolescent mothers. Again follow-up Chi-square analyses were not statistically significant. There was a difference in the mean education level of the breastfeeding (11.2 years of school completed) and bottlefeeding sample (10.3 years of school completed). These findings are consistent with the literature (Grossman et al., 1989; and Kurinij et al., 1988) which indicate that more educated adolescent mothers are more likely to breastfeed. No statistical differences were found when education level was categorized into the two groups of: less

than high school education, and high school education or greater. This is not surprising as both breast and bottlefeeding groups had, on average, below a high school education. Again, there was limited clinical significance, because both groups (11.2 years of school completed for the breastfeeding sample and 10.3 years of school completed for the bottlefeeding sample) were theoretically at the same development level.

The variables of marital status, income, tobacco use, and alcohol use were found to have no statistical relationship to breastfeeding or bottlefeeding in either the t-test, or the Chi-square analyses. There were more married adolescent mothers in the breastfeeding group, but no statistical significance was found. There are only six married mothers in the sample making the statistical power very small. The income level was also higher in the breastfeeding mothers, but again, not statistically significant. The trend of the increased income level being associated with breastfeeding mothers was consistent with the literature (Baisch et al., 1989; Jacobson et al., 1991; Joffe & Radius, 1987). There is a little variability in the income level used for the study, with all of the mothers having a low family income based on the WIC program income criteria.

A surprising finding was that the mean rate of alcohol use was higher in the breastfeeding adolescent mothers. The number of drinkers was also slightly higher in the

breastfeeding sample, although neither were statistically significant because the number of drinkers were so few. A possible explanation was that the breastfeeding mothers were more compelled to be honest about the self reporting of behavioral habits. They may also be more honest because of the potential consequences these habits could have on their infants. Another possible explanation for these findings was that the adolescent mother may feel that the benefits of the breast milk for the infant outweigh the risk of the infant obtaining alcohol via the breast milk. These explanations are assumptions that were not analyzed in this study.

There were very few differences that might help to explain the infant feeding method choice in adolescent mothers. The only statistically significant findings included a higher mean maternal age, which may not be clinically significant, and a higher mean educational level, which again may not be clinically significant, in the breastfeeding sample. These findings may lead to a very limited conclusion that the older and more educated adolescents may choose the adaptive response of breastfeeding their infant.

DISCUSSION

Recommendations for Future Research

The findings of this study have filled a small gap in the literature by describing and comparing both the demographic and behavioral variables of adolescent mothers

that are breastfeeding and bottlefeeding their infants. The finding that older and better educated adolescents are more apt to breastfeed confirms findings from prior studies, however, further research with larger sample sizes, on this topic is needed. Additional research needs to occur in the following areas: 1) Assessing the decision making factors of the adolescent mothers in their choice to breastfeed or bottlefeed, especially factors that concern behavioral habits like alcohol use, tobacco use and nutritional factors in the decision to breastfeed; 2) Assessing if the adolescent mothers are making their infant feeding method based on their behavioral habits, i.e., are adolescent mothers not breastfeeding if they drink alcohol or smoke cigarettes; 3) Assessment of the actual and potential barriers to breastfeeding; 4) Exploration of duration rates in breastfeeding adolescent mothers, analyzing the reasons why they continue, decrease, or stop breastfeeding their infants; 5) Utilizing the Health Belief Model to explore decisions about breastfeeding; 6) Assessing sources of social support for the adolescent mother with regard to her infant feeding method choice; 7) Assessing who was the major influence on the adolescent mother's choice to breastfeed; 8) Conducting studies assessing the knowledge base of health care providers (MD, Nurse Practitioner, Clinical Nurse Specialist, Certified Nurse Midwife, Registered Nurse) about breastfeeding in adolescents; 9) Assessing the health care providers ability to provide information and education to

the adolescent mother on the best infant feeding method choice; and 10) Examining different educational approaches to breastfeeding to identify developmentally appropriate methods that succeed in encouraging adolescent mothers to breastfeed their infants.

There are many areas of research needed on the topic of adolescent mothers and breastfeeding. This study suggests focus on the assessment and identification of reasons why adolescent mothers choose to breastfeed or bottlefeed their infants. The research needs to focus on the identification of factors that are associated with the breastfeeding mothers' decision making processes, the actual and potential barriers to breastfeeding, and the identification of the social support network for breastfeeding. The focus of further research needs to include the identification of educational needs of both health care providers and adolescent mothers.

Discussion of the Theoretical Model

This study used Roy's Adaptation Model to describe how the input (pregnancy of the adolescent and birth of an infant) and the effectors (characteristics of the adolescent mother) led to the adaptive response of breastfeeding, or the maladaptive response of bottlefeeding. The study found that the characteristics (effectors), had a scant amount of statistical significance. The reason for this could have been the small sample size and restriction in some of the variables, or it may be because the variables studied

actually played little to no role in determining the adolescent mother's method of infant feeding.

Roy's model was an effective model for this study, even though scant statistical significance was found. The theoretical model was helpful in defining the characteristics that could lead to the adaptive process of breastfeeding or the maladaptive process of bottlefeeding. However, based on the finding of this study and this theoretical model, the only conclusion that may be drawn is that older and more educated adolescent mothers may be more likely to breastfeed an infant. The Health Belief Model may have been a more helpful model to utilize for future research studies, because it may be able to identify the reason why adolescent mothers are choosing to breastfeed versus bottlefeed their infants.

Implications for Advanced Nursing Practice

The goal for primary care is health promotion and health prevention. Increasing the rate of breastfeeding mothers is a Healthy People 2000 goal, as well as a general health promotion goal. To obtain the breastfeeding goal of at least 75% of all mothers breastfeeding their infants in the early postpartum period, information needs to be acquired from the adolescent mothers. The knowledge and skills of the Advanced Practice Nurse can be utilized to gather this information by assessing, educating, managing, and researching breastfeeding adolescent mothers. The Advanced Practice Nurse can utilize the findings of this

study and incorporate them into their practice. The APN utilizes many different roles into their practice making them uniquely suited to utilize research results to help assess, educate, and manage adolescent mothers and their method of infant feeding.

The Advanced Practice Nurse needs to utilize keen assessment skills to implement a more focused and detailed assessment of the adolescent mother. The APN needs to gather a full health assessment, to include demographic and behavioral data, as well as the main social support systems for the mother. The APN can utilize these results by assessing for extended social support people on an individualized basis, to include maternal support, peer support, family support, and support of a significant other. Assessment of the role of the support person in the decision to breastfeed or bottlefeed, may give the APN important information on the reasons adolescent mothers choose to breast or bottlefeed their infants.

The APN must also assess for perceptions and barriers of the adolescent mother and their decision to breast or bottlefeed their infant. The assessment must also include the support person's attitudes and feeling about breastfeeding. The support, or lack of support, by a partner, family member, or peer, may influence the mother's decision to breast or bottlefeed. Identification of this information can help the APN implement an individualized education and management plan based on what was found in the

assessment of the adolescent mother. Negative support about breastfeeding from a support person is also something to assess for. Strategies for giving support to the adolescent who does not have a positively supportive person in their life, include the utilization of peer groups, health care provider support, and community support.

The incorporation of an education and management plan for each individual needs to be a focus for the Advanced Practice Nurse. Based on the findings from this study the APN needs to get beyond the idea of identifying high risk adolescents based on demographic and behavioral variables. Instead the APN should encourage and educate each adolescent on an individual level.

The APN can develop an education and management plan on what is known about the developmental levels in adolescents, since the results of this study show that age and education were important in decisions to breastfeed. The education of the early adolescent will need to focus on the maintenance of normalcy in physical development. Incorporating information that breastfeeding may make your body regain its shape quicker would be important. The middle adolescent time period is a time when peer support is vital. The APN could develop a peer counseling educational program, by identifying adolescent mothers who have successfully breastfed. These mothers could then counsel and educate other adolescents about the benefits of breastfeeding. This peer counseling and education can be effective with all

adolescent age groups, but especially the middle adolescent group. The education of the late adolescent needs to be more focused on the positive benefits of breastfeeding to the mother. This age group, theoretically, is interested in forming individual relationships and bonding, which needs to be emphasized as a benefit in breastfeeding their infant. The education and management plan as a whole needs to focus on the potential benefits of breastfeeding.

A multifaceted educational approach to the promotion of breastfeeding should be utilized to include the new mother, social support persons, health care professionals, and the broader community. The multifaceted breastfeeding education of the adolescent mother needs to start early in the prenatal care, and continue into the post-partum period to ensure continuous education and encouragement of the positive effects of breastfeeding to the mother and the infant. The education also needs to include the potential dangers of alcohol, tobacco, and drugs.

The Advanced Practice Nurse must also utilize the research role so that additional information can be gathered about the adolescent population and their decision to breast or bottle feed their infants. The APN can utilize the research role in three different ways. First, new research studies can be initiated and implemented. Second, the APN can participate in larger, national studies. Third, the APN can informally gather information that is based on the geographic area of practice and factors that may affect the

adolescent mothers infant feeding method. The research role is very important for the APN to utilize at any level, because studies are limited in analyzing adolescent mothers and their choice of infant feeding method.

In summary, the information gained from this study found statistical significance in mean age and education level, revealing that the older and more educated adolescent mother was more likely to breastfeed. The characteristics of income, marital status, cigarette use, and alcohol use were found to have no statistical significance, revealing that these characteristics were not significant factors in breastfeeding or bottlefeeding for adolescent mothers in this sample. The need for future research to find factors that affect the adolescent mother's choice of an infant feeding method is crucial. With a growing number of Advanced Practice Nurses in a variety of settings, and with the utilization of the roles of assessor, educator, and researcher, we will hopefully see a significant increase in the breastfeeding rates of adolescent mothers in the future.

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APPENDIX A

MICHIGAN STATE
UNIVERSITY

April 20, 1995

TO: Elizabeth Beyer
2842 Roundtree
Ypsilanti, MI. 48197

RE: IRB#: 95-183
TITLE: CHARACTERISTICS ASSOCIATED WITH THE INFANT FEEDING METHODS OF ADOLESCENT MOTHERS RECEIVING WIC
REVISION REQUESTED: N/A
CATEGORY: 1-E
APPROVAL DATE: 04/20/95

The University Committee on Research Involving Human Subjects'(UCRIHS) review of this project is complete. I am pleased to advise that the rights and welfare of the human subjects appear to be adequately protected and methods to obtain informed consent are appropriate. Therefore, the UCRIHS approved this project including any revision listed above.

RENEWAL: UCRIHS approval is valid for one calendar year, beginning with the approval date shown above. Investigators planning to continue a project beyond one year must use the green renewal form (enclosed with the original approval letter or when a project is renewed) to seek updated certification. There is a maximum of four such expedited renewals possible. Investigators wishing to continue a project beyond that time need to submit it again for complete review.

REVISIONS: UCRIHS must review any changes in procedures involving human subjects, prior to initiation of the change. If this is done at the time of renewal, please use the green renewal form. To revise an approved protocol at any other time during the year, send your written request to the UCRIHS Chair, requesting revised approval and referencing the project's IRB # and title. Include in your request a description of the change and any revised instruments, consent forms or advertisements that are applicable.

PROBLEMS/ CHANGES: Should either of the following arise during the course of the work, investigators must notify UCRIHS promptly: (1) problems (unexpected side effects, complaints, etc.) involving human subjects or (2) changes in the research environment or new information indicating greater risk to the human subjects than existed when the protocol was previously reviewed and approved.

If we can be of any future help, please do not hesitate to contact us at (517)355-2180 or FAX (517)336-1171.

Sincerely,

David E. Wright

David E. Wright, Ph.D.
UCRIHS Chair

DEW:pjm

cc: Linda Beth Tiedje

OFFICE OF
RESEARCH
AND
GRADUATE
STUDIES

University Committee on Research Involving Human Subjects (UCRIHS)
Michigan State University
232 Administration Building
East Lansing, Michigan
48824-1046
517/355-2180
FAX: 517/432-1171

APPENDIX B

MICHIGAN

WIC PROGRAM

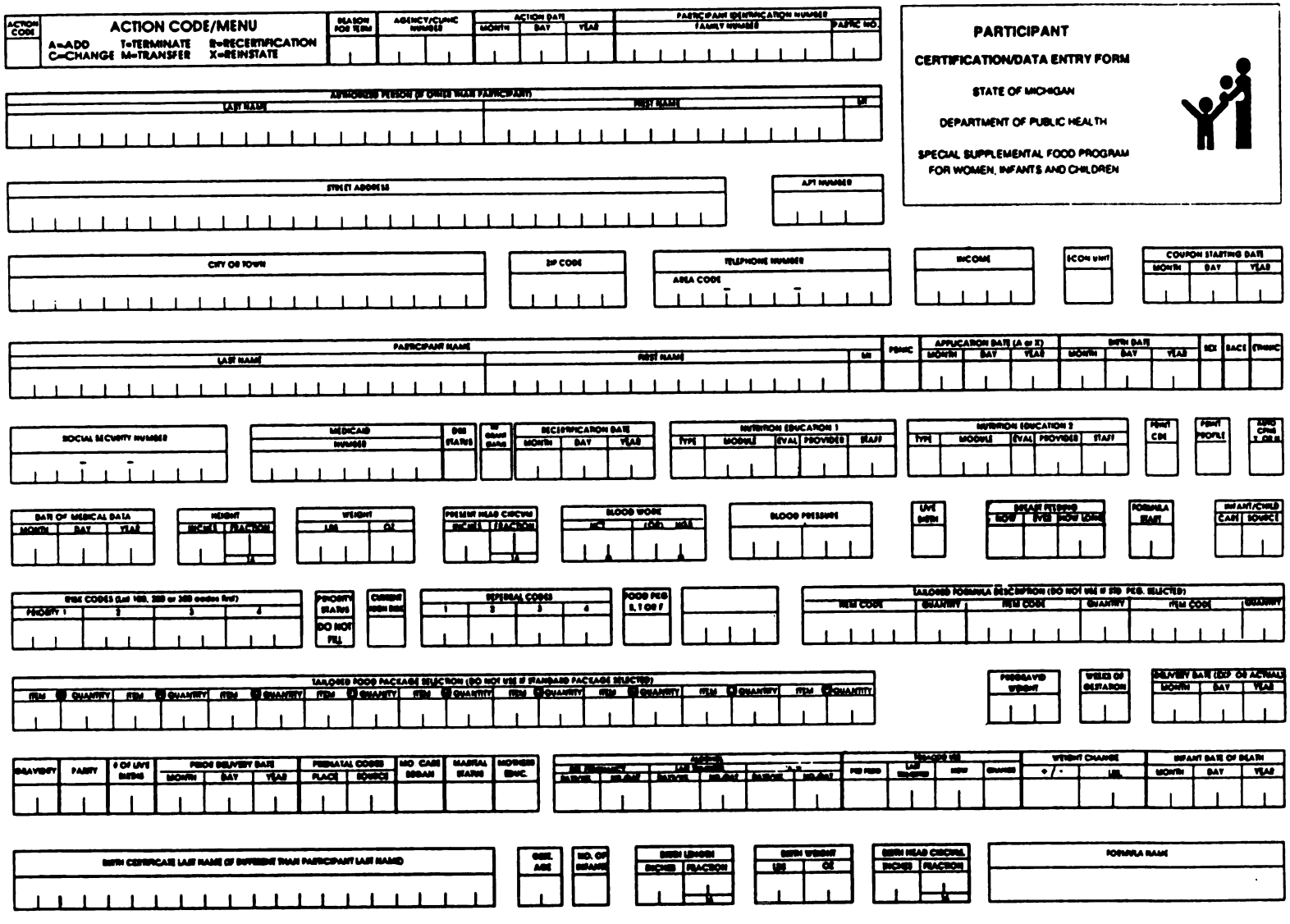
INCOME GUIDELINES

Effective date: **February 9, 1995**
(Replaces previous guidelines effective February 10, 1994)

SIZE OF ECONOMIC UNIT*	WEEKLY	BIWEEKLY	MONTHLY	ANNUALLY
1	$266	$ 532	$1,152	$13,820
2	357	714	1,547	18,556
3	448	896	1,941	23,292
4	539	1,078	2,336	28,028
5	631	1,261	2,731	32,764
6	722	1,443	3,125	37,500
7	813	1,625	3,520	42,236
8	904	1,807	3,915	46,972
FOR EACH ADDITIONAL MEMBER OF THE ECONOMIC UNIT	+92	+183	+395	+4,736

Federal Register Vol. 60, No. 27. Thursday, February 9, 1995. Notices page 7772.

Economic unit counts a pregnant woman as one (1).


ACTION CODE
ACTION CODE/MENU
A=ADD T=TERMINATE R=RECERTIFICATION
C=CHANGE M=TRANSFER X=REINSTATE
REASON FOR TERM
AGENCY/CLINIC NUMBER
ACTION DATE
MONTH
DAY
YEAR
PARTICIPANT IDENTIFICATION NUMBER
FAMILY NUMBER
PARTIC NO.
PARTICIPANT
CERTIFICATION/DATA ENTRY FORM
STATE OF MICHIGAN
DEPARTMENT OF PUBLIC HEALTH
SPECIAL SUPPLEMENTAL FOOD PROGRAM
FOR WOMEN, INFANTS AND CHILDREN
AUTHORIZED PERSON (IF OTHER THAN PARTICIPANT)
LAST NAME
FIRST NAME
MI
STREET ADDRESS
APT NUMBER
CITY OR TOWN
ZIP CODE
TELEPHONE NUMBER
AREA CODE
INCOME
ICON UNIT
COUPON STARTING DATE
PARTICIPANT NAME
LAST NAME
FIRST NAME
MI
PRNC
APPLICATION DATE (A or T)
BIRTH DATE
SEX
RACE
ETHNIC
SOCIAL SECURITY NUMBER
MEDICAID NUMBER
DOB STATUS
RECERTIFICATION DATE
NUTRITION EDUCATION 1
NUTRITION EDUCATION 2
TYPE
MODULE
EVAL
PROVIDER
STAFF
PRINT CDS
PRINT PROFILE
ADD'L CHILD 5 OR 6
DATE OF MEDICAL DATA
HEIGHT
INCHES
FRACTION
WEIGHT
LBS
OZ
PRESENT HEAD CIRCUM
BLOOD WORK
HCT
FOOD FED
BLOOD PRESSURE
LIVE BIRTH
BREAST FEEDING
NOW
EVER
HOW LONG
FORMULA FED
INFANT/CHILD CARE
SOURCE
RISK CODES (List 100, 200 or 300 codes first)
PRIORITY 1
2
3
4
PRIORITY STATUS
DO NOT FILL
CURRENT HGB/HCT
DIETETICAL CODES
1
2
3
4
FOOD PKG 1, 2 OR 3
TAILORED FORMULA DESCRIPTION (DO NOT USE IF STD FOR SELECTED)
ITEM CODE
QUANTITY
TAILORED FOOD PACKAGE SELECTION (DO NOT USE IF STANDARD PACKAGE SELECTED)
ITEM
QUANTITY
PREGNANT WEIGHT
WEEKS OF GESTATION
DELIVERY DATE (EST OR ACTUAL)
GRAVIDITY
PARITY
OF LIVE BIRTHS
FOOD DELIVERY DATE
PRENATAL CODES
PLACE
SOURCE
MID CARE PROGRAM
MARITAL STATUS
MOTHERS EDUC.
ANEMIA
HB RESULT
HB DATE
HCT RESULT
HCT DATE
TAILORED FEE
PRE FEED
LAST WEIGHED
NOW
CHANGE
WEIGHT CHANGE
+ / -
LBS
INFANT DATE OF DEATH
BIRTH CERTIFICATE LAST NAME (IF DIFFERENT THAN PARTICIPANT LAST NAME)
GEST. AGE
NO. OF INFANTS
BIRTH LENGTH
BIRTH WEIGHT
BIRTH HEAD CIRCUM
FORMULA NAME