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A SURVEY TO DETERMINE THE DIFFERENCES IN CHILD REARING PRACTICES  
AND CHILD DEVELOPMENT OF A SELECTED GROUP OF BOTTLE AND  
BREAST FED INFANTS DURING THE FIRST YEAR OF LIFE

by

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## ABSTRACT

The problem was to determine differences in growth and development and child rearing practices among a selected sample of breast fed and bottle fed infants, through the age of one year.

The survey method of research was employed. Data was collected by a questionnaire combined with a personal interview, and the examination of medical records. Thirty-five mothers participated in the study.

Of the thirty-five infants in the study 15 were in the breast fed category and 20 were in the bottle fed group. Findings indicated that differences did exist between bottle and breast fed infants in the area of weight gain, breast fed infants, as a group, weighing less at one year than the bottle fed. Bottle fed infants were found to have a greater amount of all types of illnesses including colds, through one year of age.

Child rearing practices regarding discipline and immunization practices also differed in the two groups. Discipline was used by more mothers in the bottle fed group, and there was a greater variation among the methods of discipline employed in this group. Breast fed infants had both received and completed their total immunization program at an earlier age than the bottle fed. Differences in non-nutritive sucking were observed, more of the breast fed infants sucking the thumb and fingers while more of the bottle fed infants used the pacifier.

Other areas that were investigated included feeding practices such as weaning, demand or schedule, positions during feeding and the introduction of other liquids and foods, toilet training, verbalization, teething, sleep habits and motor abilities.



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CHAPTER I

INTRODUCTION

Debate has flourished for many years over the significance of the mother's choice of bottle versus breast feeding of the infant, in relation to her flexibility in child rearing practices, and subsequent development of the child's personality.

One of the prevalent theories has been that mothers who choose to bottle feed their infants are less flexible in their total personality structure, more rejecting of the infant, and develop a greater dependency relationship with the infant than do mothers who choose to breast feed their children. "Levy (1943) reports that rejecting mothers may be more inclined to bottle feed their children, but that over-protected children may be breast fed for an inordinately long time."<sup>1</sup>

However, Sears, (1957) in several studies of maternal personality, was able to detect no differences in personality development between mothers, or any differences in personality development between children, breast or bottle fed since infancy.<sup>2</sup>

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<sup>1</sup>Abby Bonime Adams, "Choice of Infant Feeding Technique as a Function of Maternal Personality," Journal of Consulting Psychiatry, Vol. 23, No. 2, (1959), p. 143.

<sup>2</sup>Lois Waldis Hoffman and Martin L. Hoffman, Review of Child Development Research, Vol. I, (New York: Russell Sage Foundation, 1964), p. 928.

Conversely, mothers who breast feed their children have been considered to be more relaxed in their child rearing practices, placing less emphasis on rapid development, and in general maintaining a warm but casual relationship with the child. Samuel Stone and Harry Bakwin, in an article on breast feeding, have indicated that the mother who nurses her baby "establishes at an early date an intimacy with her child which makes further relationships with him easy and natural."<sup>3</sup>

Recognition must be given to the effects of cultural pressures that have influenced child rearing practices. "Convention will dictate the baby's way of sleeping, eating, moving his bowels, and even telling him when it is proper to cry."<sup>4</sup> Theories of experts in the field of child psychology and child development have influenced parents in these practices, which have changed drastically in the past two centuries.

Four major trends can be observed in child rearing practices since 1700. The first trend dating from 1700 to 1860, the time of the Civil War, was an era of firm discipline. "Breaking the child's will" was accepted, so that the child would conform to strict routines. "Firm discipline as well as love for the child", was advocated, and spankings were common in American homes."<sup>5</sup> Crying should be examined and if the

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<sup>3</sup>Samuel Stone, M. D., and Harry Bakwin, M. D., "Breast Feeding," The Journal of Pediatrics, Vol. 33, (C. V. Mosby Company, November, 1948), p. 665.

<sup>4</sup>Aldrich and Aldrich, Babies Are Human Beings, (New York: Macmillan Company, 1946), p. 20.

<sup>5</sup>Daniel R. Miller and Guy E. Swanson, The Changing American Parent, (John Wiley and Sons, Inc., Copyright 1958), p. 8.

child was not in pain he should be allowed to scream until he stopped of his own accord.

From the Civil War to the First World War, rigid disciplinary tactics and enforcement of routines drew less and less support. Children were considered as individuals who must lead their own lives, and thus they regulated their own schedules. This period saw the gradual acceptance of bottle feeding. The third period, starting from the First World War to 1945 was influenced by the works of John B. Watson, "Father of Behaviorism," and Luther Emmett Holt and his sons. These men advocated the treatment of children as though they were young adults. Children were trained to be highly independent. Toilet training, weaning and feeding were again placed on formal schedules.

Beginning at the approximate time of 1945 and still predominating in this country is the laissez-faire period of child rearing, defined as meaning that each individual child and its parents together are the determinants of when child rearing practices are instituted, based in part on the child's level of development; and based in part on the emotional level of the child as ascertained by the parents and any authorities they wish to consult. Thus a more tolerant attitude toward the individual child is accepted, and the rigid, authoritarian pattern of the thirties is gone.<sup>6</sup>

An area of conjecture among members of the medical profession that is more measurable in its many facets is the growth and development

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<sup>6</sup>Ibid, pp. 3-30.

pattern of bottle fed versus breast fed babies. One can amass a great deal of literature that will confirm, to the prejudiced mind, the advantages of either breast or bottle feeding in producing larger, more advanced children in all spheres of growth and development. "Since physical appearance or health of the child also will contribute to the parent-child relationship"<sup>7</sup> these considerations are not to be overlooked. "It has gradually come to be accepted by many that great though the differences between human milk and cow's milk may be, cow's milk is just as good as human milk as a food for infants."<sup>8</sup> A common mistake made by parents is to judge their child rigidly against some norm of growth and development set up for an average child in a population of children rather than judging the child in terms of its potential, taking into consideration hereditary factors involved, and other differences in the child. "A delineation of the effects of various environmental factors, specific nutritional deficiencies, etc. upon the rates of development of the various organ systems would obviously contribute to our understanding and interpretation both of the 'normal' and the 'abnormal'."<sup>9</sup>

Thus the idea of a study pertaining to differences in child rearing practices among mothers who chose to bottle feed or to breast feed their

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<sup>7</sup>Sidney Berman, M. D., "Parent's Adjustment to Children in the Home," Journal of Pediatrics, Vol. 32, (C. V. Mosby Company, January, 1948), p. 74.

<sup>8</sup>Stone and Bakwin, Op. cit., p. 660.

<sup>9</sup>\_\_\_\_\_, "Normal Growth and Development," Commentary, Pediatrics, Vol. 17, No. 4, (April, 1956), p. 542.

infants and also involving growth and development of each individual child in each group was received with increasing interest by the authors in order to determine the relevance of some of these beliefs.

#### Statement of the Problem

1. To determine what differences, if any, exist in growth and development in bottle and breast fed infants.
2. To determine if there are differences in child rearing practices in the areas of feeding, toilet training, non-nutritive sucking habits, history of immunization, sleeping habits, and discipline.

#### Purpose of the Study

1. To discover if child rearing practices and growth and development of infants might be correlated with bottle or breast feeding.
2. To gain a better understanding of the mother-child relationships with the hope that this knowledge will be beneficial in future nurse-patient relationships.

#### Hypotheses

1. Mothers who breast feed their infants differ from those who bottle feed their infants in their child rearing practices regarding toilet training, age at which immunizations were started, weaning age, starting the transition to table foods, and discipline.
2. Infants who are breast fed to weaning time tend to suck the thumb or use the pacifier less frequently than bottle fed infants.
3. There is no difference in growth and development at one year of age between bottle and breast fed infants as measured by comparison in height and weight, ability to verbalize, number of teeth, amount of illness and motor abilities in the area of walking, rolling, crawling and sitting.

### Methodology

The survey method was employed in this study. A questionnaire combined with a personal interview with each of the thirty-five mothers in the sample was administered by the researchers. Observation of the infants during the interview was possible in all but three cases, where the time of the interview coincided with the nap or bedtime of the child. An observation sheet aided the researchers in obtaining descriptive information about the infants. Medical records were used to obtain data concerning weights of the infants at specified intervals during the first year as well as immunization dates and illnesses treated by the physician. Medical records did not contain adequate information concerning the heights of the infants. Therefore, this measurement could not be included in the study.

Participants in the study were located in the Bozeman, Belgrade, and Three Forks area, with the exception of one family each in the localities of Ennis, Wilsall, and Billings, Montana. One family had resided in the Bozeman area at the time of the birth of the child, but had relocated in the State of Illinois. The same questionnaire used in the personal interviews was sent to the family in Illinois and in Billings, Montana, with additional questions added, so information dealing with height, weight, immunizations and illnesses could be obtained.

The sample was a select sample obtained from a previous study done by Mrs. Lucille Winslow in 1964. The sample was obtained from the mothers who delivered babies at Bozeman Deaconess Hospital between March 16, 1964,



and April 16, 1964. Of forty-eight in the original sample, thirty-five mothers participated in this study.

#### Limitations of the Study

The sample is not a random sample but a selected sample. There are many other variables that could be involved in the determination of growth and development, and child rearing practices, such as genetic inheritance, cultural influences, socio-economic level, and prenatal status of the mother. The investigators did not attempt to interpret the emotional and psychological aspects of child rearing practices, relating to bottle or breast feeding. The study was confined to the physical growth and development of the child, and the child rearing practices of mothers of breast fed and bottle fed infants, as determined by the questionnaire and personal interviews.

#### Definition of Terms

Terms used in this study are defined as follows:

Bottle Feeding: The greatest amount of milk received from the bottle.

Breast Feeding: The greatest amount of milk received from the breast during the first two months of life.

Colic: Drawing up of legs, loud screaming and rigid abdomen.

Weaning: Severance, gradual or abrupt, from the use of breast or bottle to furnish the infant's milk supply.

Weaning Completed: When the baby is receiving no bottle or breast feedings.

Adult Food and Table Foods Are Used Synonymously: Any food the adult eats that is not altered in consistency.

Vomiting: Forceful ejection of fairly large amounts of material, usually from the stomach.

"Spitty": Ejection from the mouth of small amounts of material.

Schedule Feeding: To feed at a fixed time.<sup>10</sup>

Demand Feeding: Self-regulated feeding.

Toilet Training: The conditioning of the child to defecate or urinate when placed on the toilet and to retain the stool or urine during the intervening time.

Completion of Toilet Training: When the child defecates or urinates on the toilet the majority of the time.

Pacifier: A false teat.

Thumbsucking: Non-nutritive sucking limited to the thumb.

Discipline: To guide; to punish.

Growth: Increase in the bodily dimensions.<sup>11</sup>

Development: Expanding functional facility of the child.

Walking: To move about in a vertical position (stance) without support or assistance.

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<sup>10</sup> \_\_\_\_\_, Webster's New Collegiate Dictionary, (Springfield, Massachusetts: G. & C. Merriam Company, Publishers), p. 755.

<sup>11</sup> Margaret Nesbitt Murphy and Marian Breckenridge, Growth and Development of the Young Child, (sixth edition; Philadelphia and London: W. B. Saunders Company, 1958), p. 4.



Justification for the Study

Since an abundance of folklore and conjecture regarding the advantages and disadvantages of bottle versus breast feeding is available in the United States today, and since this plays a part in prejudicing mothers to choose bottle or breast feeding as the principal method of nourishment for their infants, the authors felt that a study done to ascertain whether there are observable differences in child rearing practices among mothers who choose to bottle or breast feed their infants, and whether there are observable differences in growth and development of these bottle or breast fed infants would be valuable.

The nurse, in her supportive role to both mother and infant, is often directly confronted with some pieces and bits of information the mother has obtained regarding the pros and cons of bottle or breast feeding. The mother, in her apprehension and concern over doing the best possible thing for her infant, demands instant corroboration or refutation of this knowledge. It is fervently hoped by the authors of this study that they, at least, can draw upon the information obtained from the study in supporting the mother and child when these questions are asked, in a more objective fashion than might previously have been done.

The projected role of the nurse in the very near future, demands a much more thorough knowledge of growth and development patterns. The nurse will find herself educating the public in these areas, to a greater extent than she is now doing. Of importance to parents of all socioeconomic backgrounds are questions pertaining to thumbsucking and its related causes, toilet training, age of attainment of various motor

skills, pros and cons of disciplinary measures, and sleeping and feeding habits. The nurse should be prepared to answer these questions from a broad base of knowledge, readily at her disposal. The authors feel that this study and similar studies on a larger scale could contribute tremendously to the unbiased information the nurse can impart to help and encourage parents.

Many individual studies have been done pertaining to non-nutritive sucking, toilet training, discipline, motor development, sleep patterns, effects of weaning and other areas, as related to bottle versus breast fed children. The authors of this study combined many aspects of the aforementioned studies, in an attempt to provide a better focus in relation to bottle or breast feeding.

A study of this type had not been done in the local community concerning child rearing practices and growth and development of bottle and breast fed infants during the first year of life. The authors thus felt that such a study was justified. Longitudinal studies of these infants could be continued by another investigator in the future.

## CHAPTER II

## REVIEW OF LITERATURE

Socialization, or the gradual process by which the infant through learning and development of motor skills, acquires habits and abilities that will help him to adapt to and be accepted by the adult world, is an intricate and complex process. Individual differences as to the acquiring of the socialization skills are due in part to age, at which time the body has reached a readiness to develop the skills, and in part to the age at which various socialization pressures are exerted. The age at which these demands are made "is in part dependent on the culture of their society and of their subgroup within the society."<sup>12</sup>

Interest in child development is taking a more prominent place with other research in the human sciences, in adjunct to the increased "child-centered" approach to child rearing, adhered to today in our society. "The child's body is his equipment for living. Through it he receives impressions from life about him. He thinks, feels and acts. He uses his body both to express his thoughts and feelings and to manipulate his environment of things and people."<sup>13</sup> As the bodily dimensions increase, the capacity of the individual to function in his environment more

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<sup>12</sup>Irvin L. Child, Handbook of Social Psychology, Vol. II, Chap. 18, (ed. Gardner Lindzey. Addison-Wesley Publishing Company, March, 1959), p. 678.

<sup>13</sup>Murphy and Breckenridge, Op. cit., p. 134.

adequately, through increasing facility in manipulating his physical actions also increases.

Food needs are one of the first and most fundamental needs of the newborn infant for maintenance of life. Since the human infant is unable to obtain food without the intervention of another person, usually, the mother or mother figure, in our society, various methods have been devised to meet these needs. It is believed that the method used can have an influence on the maturation of the child. The two principle methods of infant feeding are bottle or breast feeding.

In a study done on 21,043 infants comparing the later development of breast fed and artificially fed infants, regarding physical and mental growth, it was found that height was not seemingly influenced by the type of feeding differences in percentages of short and tall children. However, the artificially fed were inferior in all standardized measurements to those breast fed from four to seven months; and, with one exception, to those breast fed from three months or less. Artificially fed children equaled or exceeded those breast fed from ten to twenty months.<sup>14</sup> This study is confirmed by a more recent study done in 1948 by Faber and Sutton that indicated that "during the first three months of life, breast fed infants show a significantly better mean weight gain than bottle fed infants. Later, artificially fed infants gain more rapidly and this

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<sup>14</sup>Carolyn Hoefer, M. A., and Mattie Crumpton Hardy, Ph. D., "Later Development of Breast Fed and Artificially Fed Infants-Comparison of Physical and Mental Growth," Journal of American Medical Association, Vol. 92, Part I, January-March, 1929, pp. 615-619.

superiority becomes progressively greater up to the time of weaning."<sup>15</sup>  
 "Heinstein (1963) in a study concerned primarily with psychological correlates of breast versus formula feeding, reported as an incidental finding, that children who had been breast fed were no healthier or better developed physically than the formula fed ones."<sup>16</sup>

The age at which solid foods are introduced into the diet of the infant has primarily been determined by the advice of medical practitioners and this advice has not been based on the type of milk the infant receives, but rather on theories regarding maturation of the gastrointestinal tract, ability of the infant to push the food to the back of the mouth through tongue action, satisfaction of the infant's hunger needs, and theories concerning increased growth due to earlier introduction of solid foods. Watson and Lowrey state that "little is to be gained by introducing solid foods prior to one month and that the chances of aspiration are certainly increased."<sup>17</sup> Clinical studies have not offered proof of the advantage of introducing solid food prior to the age of three months.

No one today would question the nutritional inadequacy of a diet exclusively of milk throughout the first year nor of the

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<sup>15</sup>Stone and Bakwin, Op. cit., p. 662.

<sup>16</sup>Bettye M. Caldwell, "The Effects of Infant Care," Review of Child Development Research, Vol. I, (ed. Martin L. Hoffman and Lois Waldis Hoffman. Russell Sage Foundation, 1964), p. 25.

<sup>17</sup>E. H. Watson and G. H. Lowrey, Growth and Development of Children, (fourth edition; Chicago: Yearbook Medical Publishers Inc., 1962), p. 325.

nutritional and other benefits to be derived from a varied diet begun at four to six months of age.<sup>18</sup>

A disadvantage to introducing solid foods in the first three months might be to lessen the milk intake, which in some cases is superior to the nutritional benefits obtained from the ingested food. Junior foods or table foods are generally introduced in the child's diet according to the toleration of the child and has little to do with the nutritional requirements or the method of milk feeding chosen by the mother.

There is no indication in the present literature, that the time of dentition is correlated with the method of milk feeding, or the time that other foods are introduced into the diet, but nutrition, sex and body build do seem to be influencing factors. Neither does breast or artificial milk contribute to the number of cavities that any one child has.

There is a great deal of evidence that starches and sugar are the principal causes of caries or decay of the teeth. Studies emphasize that it's the length of time the carbohydrates are in contact with the teeth--hour after hour, year in and year out--that probably counts most.<sup>19</sup>

Research by Rand, Sweeney and Vincent demonstrates that there are great deviations in when the teeth appear. "At six months one out of three infants has some teeth. At one year, in rare cases, an infant may have less than two or more than ten."<sup>20</sup>

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<sup>18</sup>\_\_\_\_\_, "On the Feeding of Solid Foods to Infants," Pediatrics, Vol. 21, No. 4, (April, 1958), p. 686.

<sup>19</sup>Benjamin Spock, M. D., Dr. Spock Talks With Mothers, (Crest Book, Copyright 1961), p. 55.

<sup>20</sup>Murphy and Breckenridge, Op. cit., p. 212.



It appears that there are definite advantages to breast feeding pertaining to the ability of the infant to withstand illness during the first year of life. It is well known that the newborn infant is born with a passive immunity lasting six to nine months, acquired from the mother, and in direct relation to the clinical or sub-clinical infections or active immunization of the mother. The breast fed baby receives added immunity against disease and infection, and Bakwin and Stone indicated that,

. . . even those who had received breast milk plus formula or breast milk for only a short period had an added measure of protection against both respiratory and gastrointestinal infections.<sup>21</sup>

Stone and Bakwin also report that infants receiving breast milk are "less prone to gastrointestinal disturbances" than artificially fed infants.

In a study of 26,061 babies under the care of the Infant Welfare Society of Chicago, the incidence of infections of all types in the breast fed group was 37.4% as compared to 63.6% in the artificially fed group.<sup>22</sup>

Ebbs and Mulligan in an examination of 1500 consecutive admissions of babies under 12 months of age admitted for various infections to the Hospital for Sick Children in Toronto found that the incidence of breast feeding among these 1500 infants with infection was less than half the incidence of breast feeding in the well baby clinics of the city.<sup>23</sup>

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<sup>21</sup>Stone and Bakwin, Op. cit., p. 664.

<sup>22</sup>Ibid., p. 663.

<sup>23</sup>Ibid., p. 664.

Stevenson reported in several studies that breast fed babies have significantly less respiratory infections during the second half of the first year.<sup>24</sup>

Twenty-one thousand ninety-three children were examined for incidence of measles, whooping cough, mumps, pneumonia, bronchitis, diphtheria, and the results indicated that although there is no apparent immunity to any special disease, the breast fed infants seem much less susceptible to these childhood diseases than the artificially fed groups.<sup>25</sup>

The disadvantages of frequent or prolonged illness often manifest themselves in a disturbance of the parent-child relationship. According to Sidney Berman, M. D. the . . .

Resentment a parent may have toward frequent or prolonged illness in a child may find expression in devious psychological ways which only intensify the medical problem.<sup>26</sup>

Regarding the effects of a prolonged or short period of breast feeding prior to weaning, on motor development, there is no direct relationship established in the literature reviewed. Bakwin states, however, that in overprotected children where excessive care is given in feeding, dressing and bathing the child, "breast feeding is apt to be unduly

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<sup>24</sup>Murphy and Breckenridge, Op. cit., p. 232.

<sup>25</sup>Hoefer and Hardy, Op. cit., p. 617.

<sup>26</sup>Berman, Op. cit., p. 75.



prolonged."<sup>27</sup> This would tend to inhibit motor development because the child is not allowed to do these things for himself.

Growth and development and child rearing practices are closely related and cannot be considered as isolated units when viewing the child as a social being.

Bakwin states that:

Maturation and learning are closely interwoven, one accelerates or retards the other. Maturation provides the raw material for learning. In general, traits potentially present will not develop to their maximum without training.<sup>28</sup>

Though many skills such as crawling, walking and grasping appear to be almost entirely functions of maturation, others such as verbalization, age at which bladder and bowel control are established and ability to manipulate food and drink to the mouth, are inherently bound to socialization pressures exerted by the parents, or parent figure.

Sears (1953) found that:

The amount of dependent behavior was found to be positively correlated with rigidity of the feeding schedule and with severity of weaning, especially the latter.<sup>29</sup>

In regard to bottle versus breast and scheduled versus demand feeding, studies done in the 1950's relating to the adjustment of infants, have indicated completely negative findings. However, it has been shown that

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<sup>27</sup>Harry Bakwin, M. D., "Pure Maternal Overprotection," Journal of Pediatrics, Vol. 33, (C. V. Mosby Company, December, 1948), p. 791.

<sup>28</sup>Harry Bakwin and Ruth M. Bakwin, Clinical Management of Behavior Disorders In Children, (W. B. Saunders Company, 1960), p. 67.

<sup>29</sup>Child, Op. cit., p. 672.

variations in the treatment of the infant's oral behavior have important immediate effects on further oral behavior.<sup>30</sup> Literature does not cite differences in age of weaning or demand or scheduled feeding as significant between bottle or breast fed children. Rogerson and Rogerson in 1939 in a study of 107 seven year old children bottle or breast fed, found no difference in the age of weaning for the two groups.<sup>31</sup>

In relation to oral symptoms Faustin states that, "the practice of unscheduled demand feeding has prevented perverted sucking habits from developing."<sup>32</sup>

However, if one considers the idea of increased fondling and cuddling as associated with breast feeding Faustin also states that, "There are many cases of perverted thumbsucking that have been satisfactorily treated by advising the parents to fondle and cuddle the baby more."<sup>33</sup>

In a study by Sewell and Mussen in 1952 that devoted attention to child training practices used in the family, attempting to relate bottle versus breast feeding, nature of the feeding schedule (demand or request), and the nature of the weaning process (sharp or gradual), no evidence was

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<sup>30</sup>Ibid., p. 678.

<sup>31</sup>Hoffman and Hoffman, Op. cit., p. 26.

<sup>32</sup>Neff Weber Faustin, "Some Problems Common to the Pediatrician and the Orthodontist," The Journal of Pediatrics, Vol. 37, (C. V. Mosby Company December, 1950), p. 883.

<sup>33</sup>Ibid.

obtained that one method of feeding, scheduling or weaning is superior to other methods.<sup>34</sup>

Results of a study done by Sears and Wise indicate that the longer weaning is prolonged the stronger the oral drive becomes, and therefore the urge to satisfy the oral drive by substituting non-nutritive sucking will increase when nutritive sucking decreases.<sup>35</sup>

Contrary to opinion that breast fed babies engage in less non-nutritive sucking habits than bottle fed babies, G. Klackenburg states that:

In the investigation on the basis of which Levi in 1928 stressed the primary importance of the sucking period on thumbsucking, there is also the observation that occasionally, apparently adequate breast feeding is not an infallible prophylactic against thumbsucking. Gesell does not attach much importance to the mode of feeding and the deviation of the sucking phase of the feeding act.<sup>36</sup>

The significance of thumbsucking in the twentieth century has become a matter of increasing importance to pediatricians from a symptomatic point of view; to dentists from the aspect of possible dental deformities and to families from the idea of the social stigma attached to this act. An increased use of pacifiers has been one outcome. "The wrongness or rightness of thumbsucking involves an ethical evaluation,

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<sup>34</sup>William H. Sewell and Paul H. Mussen, "Effects of Feeding, Weaning and Scheduling Procedures on Childhood Adjustment and the Formation of Oral Symptoms," Child Development, (September, 1952), p. 190.

<sup>35</sup>Hoffman and Hoffman, Op. cit., p. 39.

<sup>36</sup>G. Klackenburg, "Thumbsucking--Frequency and Etiology," Pediatrics, Vol. 4, (October, 1949), p. 419.

depending on societies views at the time."<sup>37</sup> Some centuries ago, children who took solace in thumbsucking were regarded with complacency. Artists used them as subjects for pictures expressing peace and sublime tranquility. In the twentieth century, "thumbsucking is considered a pernicious habit." Klackenburg states that in a study done of 32 children who used the "dummy teat" or pacifier for a lengthy period of time, in those using it for over 3 months, which consisted of 28 of the 32 cases, there were no thumbsuckers. He attributes these results to reasons other than the gratification of the sucking requirement alone, one being that the teat eliminates the rooted reaction patterns which are developed in fingersucking by the need for solace and sucking.<sup>38</sup> "Studies done show evidence that in children who use pacifiers only a small percentage become thumbsuckers."<sup>39</sup>

Pacifiers use for "colicky" babies has been recommended by many pediatricians.

The best mechanical aid in treating colic is a pacifier. It serves its purpose by providing additional sucking gratification and relaxation, especially in the well-nourished infant who apparently does not need extra food.<sup>40</sup>

Wessel and others have found family tension greater and more frequent

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<sup>37</sup>Ibid.

<sup>38</sup>Ibid., p. 421.

<sup>39</sup>Mildred F. Rabinow, "Thumbsucking: A Look At Recent Research," Child Study, (Fall, 1959), p. 21

<sup>40</sup>Alevin C. Rambar, "Colic In Infants--General Considerations," Pediatrics, 18:5, (November, 1956), p. 833.

where there are colicky babies, than in homes where the infants seem content. The mother of the infant with colic has been described as tense, anxious, uncertain, often rejecting and uncertain in her handling of the baby.<sup>41</sup> From results of a study done by Levy in 1943 that reported "that rejecting mothers may be more inclined to bottle feed their children,"<sup>42</sup> one could infer that more bottle fed infants would be inclined to have colic if the mother's personality traits are indicator's of her choice of feeding techniques. However, in a later study done in 1957 by Sears, Macoby and Levin, these characteristics were not found to be coexistent with choice of feeding technique.<sup>43</sup>

Dr. Benjamin Spock has related the resistance of sleep in infancy to colic in the first three months of life. He also attributes this chronic resistance to sleep to the current trend of self-regulation as regards child rearing practices in our society;

These sleep problems of the first year of life seem to be attributed to the fact that the mother who is uncertain and insecure to start with is further encouraged to give in to her baby's unreasonable demands by the official philosophy by which she has read and which her physician may have explicitly prescribed.<sup>44</sup>

This theory is supported by a study done of 200 children from birth

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<sup>41</sup>Ruth M. Bakwin, "Psychosomatic Factors With Particular Reference to the Parents of Colicky Infants," Pediatrics, Vol. 18, No. 5, (November, 1956), p. 833.

<sup>42</sup>Adams, Op. cit., p. 143.

<sup>43</sup>Ibid.

<sup>44</sup>Benjamin Spock, "Chronic Resistance to Sleep in Infancy," Pediatrics, Vol. 4, (July, 1949), p. 92.

onward, which indicated that babies with no sleep problems had mothers who were more accepting, self-confident, less anxious and had less negative feelings toward the child. Age of weaning from the breast or bottle and flexible feeding times apparently bear no relationship to sleep difficulties.<sup>45</sup>

From the Gesell Institute comes the idea that today's self-demand and self-regulation schedules which many pediatricians nowadays recommend "approximate a more primitive culture, and the child eats when he is hungry and sleeps when he is sleepy." But if the baby is following a stricter schedule he may need some help from the parent in getting to sleep in the form of rocking, pre-sleep breast or bottle, or firmness if there is undue resistance to sleep.<sup>46</sup>

The management of toilet training appears to be inextricably interwoven with the mode of discipline employed by the parents. Bakwin, in an article dealing with maternal overprotection, says that the mother who overprotects her child by dominating it, is apt to breast feed for an unduly prolonged period of time. He further states that in the dominated group as a whole, "bladder control is established early."<sup>47</sup>

In literature consulted there was no attempt to correlate bottle or breast feeding practices with choice of time or methods of toilet training.

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<sup>45</sup>Terence Moore and L. E. Ucko, "Night Waking In Early Infancy," Part I Archives of Disease in Childhood, Vol. 32, No. 164, (August, 1957).

<sup>46</sup>Frances L. Ilg and Louise Bates Ames, The Gesell Institute's Child Behavior, (New York, New York: 1955), pp. 96-97.

<sup>47</sup>Bakwin, Op. cit., pp. 788-794.



Socialization pressures exert influence on the mother's decisions regarding toilet training. It is generally accepted by authorities in the field of child growth and development today, that toilet training should not be instituted before the second half of the first year and Bakwin states that infants,

Cannot be expected to assume any responsibility for the act before the last trimester of the first year, or even later and this is consequently the most suitable time to begin training.<sup>48</sup>

In keeping with the current trends of child rearing practices most authorities advocate starting toilet training when the child indicates he is ready. Florence Blake in her book, The Child, His Parents and the Nurse states that,

Learning to use the toilet is an important social affair involving both the mother and the child. The mothers demands are demonstrated through her custom. When the child receives more pleasure (love and approval) from giving he is willing to relinquish his impulse to soil.<sup>49</sup>

Despite recommendations by authorities many mothers find that their feelings toward cleanliness and regularity dictate their choice of time to begin toilet training. Often early training is accompanied by disapproval and dissatisfaction expressed by the mother, because the child's emotional level does not allow him to adequately control his bladder and bowels. Hushka describes coercive toilet training as,

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<sup>48</sup>Bakwin and Bakwin, Op. cit., p. 68.

<sup>49</sup>Florence Blake, The Child, His Parents and the Nurse, (Philadelphia: J. B. Lippincott Company, 1954), p. 143.

Premature institution of toilet training regime and overactive, destructive training methods, which would include the use of shame, punishment for failure . . . rigidity of toilet schedule, high or low premium on perfect performance . . .<sup>50</sup>

Hushka felt that coercive training was training instituted prior to 8 months or completed before 18 months.

Mothers who have a more relaxed laissez-faire approach toward toilet training procedures and tend to be inconsistent in their training methods, often have a more prolonged period prior to successful completion of toilet training.

From studies of learning has come the theory that training which involves reinforcement on some occasions and lack of reinforcement on other occasions, produces learning which is more resistant to extinction than does training in which reinforcement is perfectly consistent.<sup>51</sup>

Disciplinary approaches used in training the child have been discussed to a great extent in the present literature. Bakwin, Berman Spock and other authorities relate the disciplinary attitudes of parents to the personalities and cultural background of the parents, the type of society in which the family lives and the unique endowment of the child. Ilg and Ames describe "the three main current theories of discipline as the strict authoritative which says 'no' to almost everything; the permissive, which says 'yes' to almost anything; and the informed permissive

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<sup>50</sup>Mabel Hushka, "The Child's Response to Coercive Bowel Training," Psychosomatic Medicine, (July, 1942), pp. 301-308.

<sup>51</sup>Child, Op. cit., p. 682.



which says 'yes' or 'no', depending on the child's state of development and what can reasonably be expected and not expected of him."<sup>52</sup>

As a child grows and develops the parents and society become involved in practices of guidance and learning which will mold the citizen of tomorrow. Many theories determine these child rearing practices, and the theories of today will become the history of tomorrow. The child's uniqueness and the personality of the parents all contribute to the child rearing practices that are developed in the individual family unit.

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<sup>52</sup>Ilg and Ames, Op. cit., p. 354.

### CHAPTER III

#### DESCRIPTION AND ANALYSIS OF DATA

The description and analysis of data represents the information obtained from the questionnaire, administered by personal interview with the participants of the study, and information obtained from medical records of the infants. Many of the questions are interrelated.

Question No. 1 Did Your Baby Receive Most of His or Her Milk Feedings by Bottle or Breast Until Weaning Was Begun?

Of the 35 infants in the study, 43 per cent or 15 received his or her feedings by breast and 57 per cent or 20 were bottle fed. (See Figure 1.)

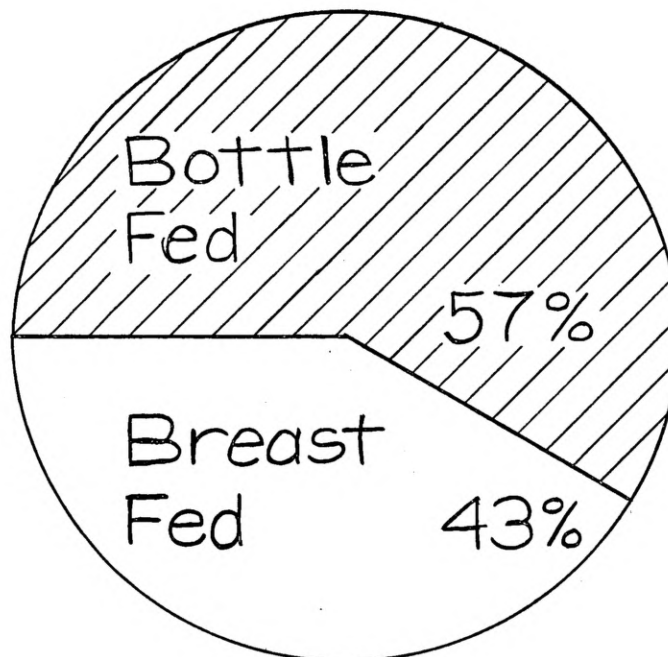


Figure 1. Comparison of the proportion of infants breast fed or bottle fed until weaning was begun.

In the remaining analysis, 15 breast fed infants will be compared to 20 bottle fed infants. Comparisons throughout the rest of the study will be based on the percentage of the whole for each of the two groups.

Question No. 2 What Position Was the Baby in During His or Her Feedings?

a. Bottle b. Breast c. Baby Food.

All of the breast fed infants or 100 per cent were held in the mothers arms for breast feeding. Of the 20 bottle fed infants, 90 per cent or 18 were held in the mothers arms for bottle feedings. The other 10 per cent of those in the bottle fed group were propped for the bottle after the first few weeks of life, but the tendency was for the majority of both breast and bottle fed infants to be held. Of the breast fed infants, 60 percent or 9 were held by the mother for the feeding of baby food while 60 per cent or 12 infants in the bottle fed group were held for the feeding of baby food.

Question No. 3 Approximately How Long a Time Was Allowed at Each Bottle or Breast Feeding?

The average number of minutes the infants of the breast fed group were allowed to suck at the breast was 30 minutes. The average number of minutes the infants of the bottle fed group were allowed to suck the bottle was 26.5 minutes. The breast fed group were thus allowed 3.5 minutes more sucking time per individual feeding than were the bottle fed infants.

Question No. 4 Did You Use Schedule or Demand Feedings?

The percentage of breast fed infants on demand feeding was 86.6 per cent or 13 as compared to 75 per cent or 15 in the bottle fed group. The percentage of breast fed infants on schedule feeding was 6.6 per cent or 1 infant as compared to 15 per cent or 3 in the bottle fed group. Both schedule and demand feedings were used in 6.6 per cent or 1 infant of the breast fed group and in 10 per cent or 2 of the bottle fed group. (See Figure 2.)

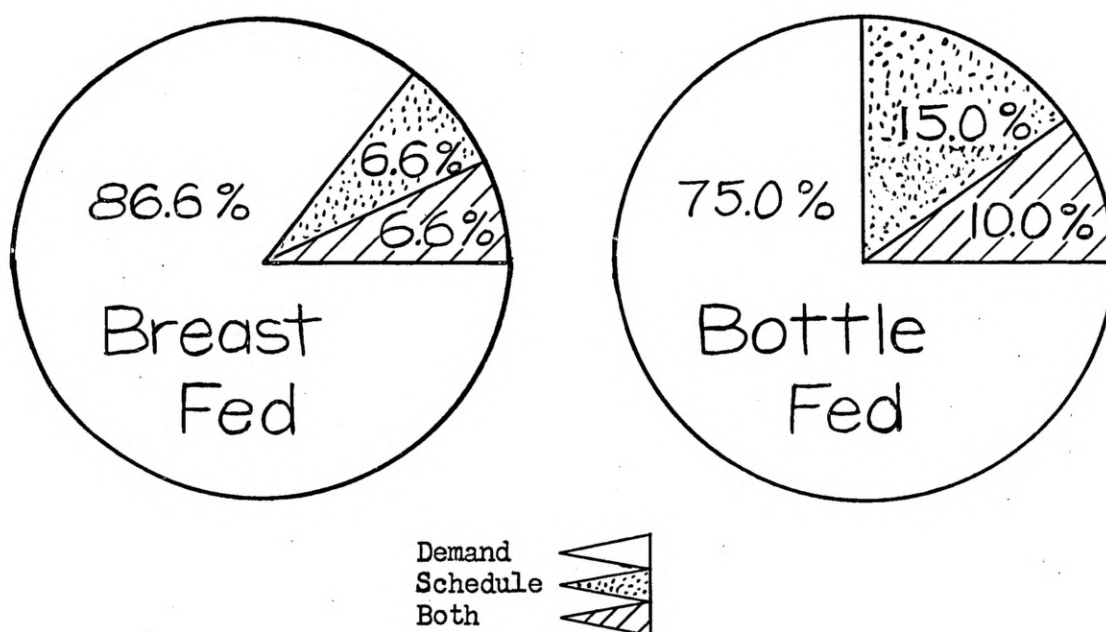


Figure 2. Comparison of the proportion of breast fed and bottle fed infants pertaining to type of feeding: demand, schedule, or both.

Thus on a percentage basis more of the breast fed group were on demand feedings than the bottle fed group.

Question No. 5 Has Your Infant Received a Vitamin Supplement? a. If Yes, When Was it Started? b. What Vitamin Was Given?

Of the 35 infants in the study, 86.6 per cent or 13 of the breast fed infants received a vitamin supplement. Eighty-five per cent or 17 of the bottle fed infants received a vitamin supplement.

By the age of 1 week, 46.6 per cent or 7 of the breast fed infants were receiving a vitamin supplement as compared to 20 per cent or 4 in the bottle fed group. At 1 month, 60 per cent or 9 of the breast fed infants were receiving a vitamin supplement as compared to 25 per cent or 5 in the bottle fed group. At 2 months, 73.3 per cent or 11 of the infants in the breast fed group were receiving a vitamin supplement. Thirty per cent or 6 of the bottle fed infants received a vitamin supplement at this age. The percentage of breast fed infants receiving a vitamin supplement remained the same at 3 months while in the bottle fed group 20 per cent or 4 more infants received a vitamin supplement. At 6 months, 86.6 per cent or 13 of the breast fed infants were receiving a vitamin supplement. This was the total number of breast fed infants to receive a vitamin supplement. At 6 months, 75 per cent or 15 of the bottle fed infants were receiving a vitamin supplement. The total number of bottle fed infants to receive a vitamin supplement did so by 9 months and this was 85 per cent or 17 infants. (See Figure 3, page 30.)

The multi-vitamin preparations were the ones most frequently used.

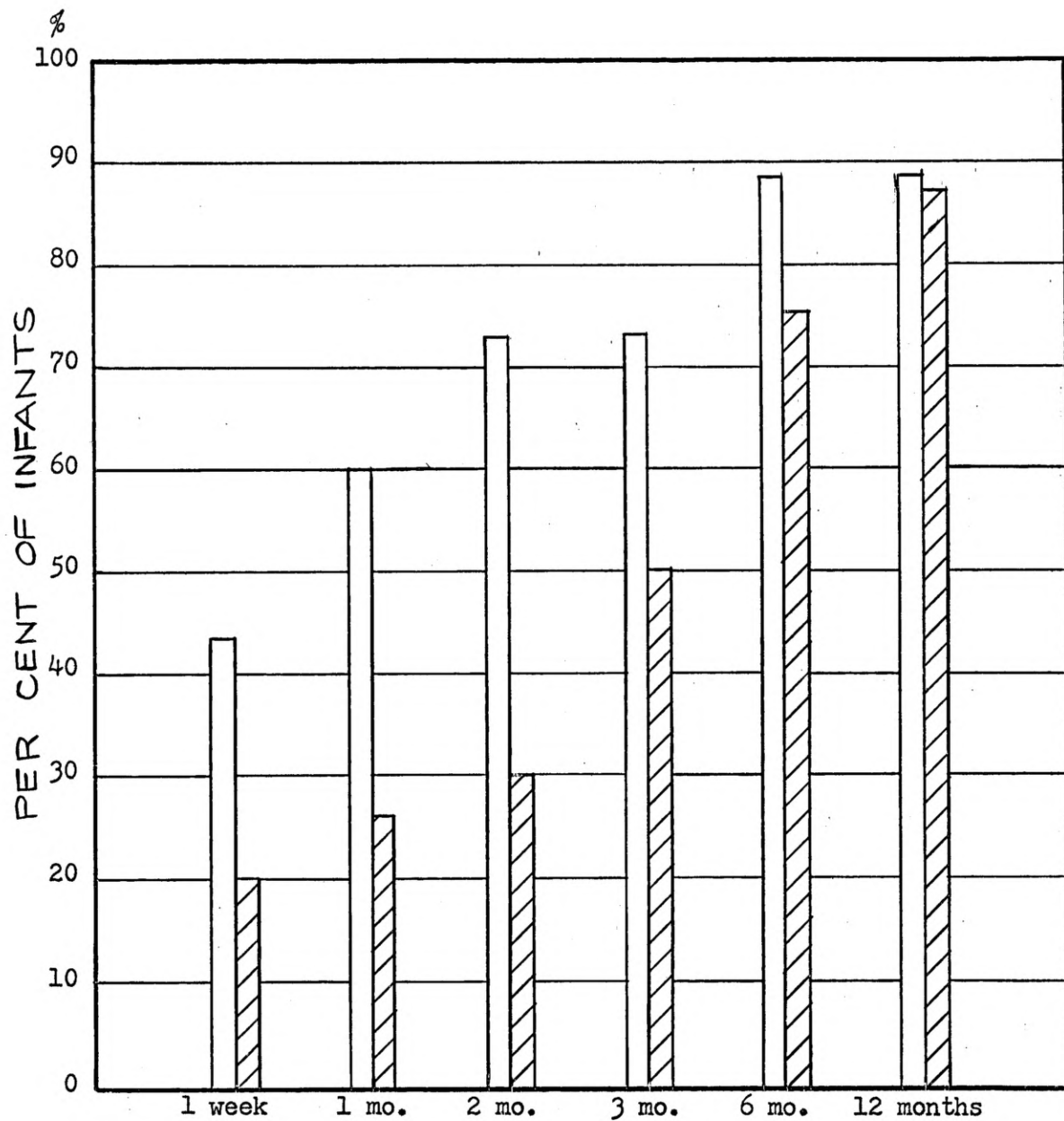


Figure 3. Comparison of the relative ages in months at which breast fed and bottle fed infants received a vitamin supplement.

Key:  
Breast   
Bottle 

Question No. 6 Approximately When Were Other Liquids Introduced? a. What Were They? b. How Were They Given?

The average age at which the breast fed infants received other liquids was 4.9 months. Two and one half months was the average age in the bottle fed group.

In the group of breast fed infants, orange and apple juice seemed to be given most frequently to start, however, other juices were given and the infants accepted them. In the bottle fed group, again orange and apple juice were given most frequently. Other juices were also given. It was interesting to note that the breast fed infants received the same juices as were given to other members of the family most often while the group of bottle fed infants received the prepared baby juices most frequently. Of the breast fed infants, other liquids were given by bottle to 66.6 per cent or 10 of the infants, from cup or glass to 26.6 per cent or 4 of the infants and 6.6 per cent or 1 infant received orange juice from a teaspoon. Ninety per cent or 18 of the bottle fed infants received juice or other liquids from the bottle and 10 per cent or 2 of the infants received juice or other liquids from a cup or glass. Thus, more of the breast fed infants were receiving other liquids from a cup or glass by one year of age, while the tendency in the bottle fed group was for the mother to use the bottle for other liquids.

Question No. 7 Approximately When Did You Introduce Cereals, Strained Foods, Junior Foods?

The average age at which the breast fed infants received cereal was 1.5 months. The bottle fed infants first received cereal at .97

months of age. In both the breast and bottle fed groups, the baby food was first introduced at 2 weeks. It was not possible to establish a pattern for introduction of junior foods as many mothers did not offer them or were inconsistent in the use of them. A very slight difference is noted in time of introduction of cereal, and this could probably be related to the advice of pediatricians, as the majority of mothers gave this advice as the criterion for the time of introduction of solid foods.

Question No. 8 When Did Weaning Begin?

Weaning began at the mean age of 3 months in both groups of infants.

Question No. 9 How Did You Wean Your Baby?

In 6.6 per cent or 1 of the breast fed group, weaning was abrupt as compared to 15 per cent or 3 of the bottle fed group. This leaves a total of 93.3 per cent or 14 of the breast fed group who were weaned gradually as compared to 85 per cent or 17 of the bottle fed group. The trend points toward a tendency to wean more gradually in the breast fed group as a whole, though weaning was begun at the same time in both groups.

Question No. 10 Is the Baby Receiving Breast or Bottle Feedings at Any Time Now? a. If No, When Did Your Baby Stop Receiving Breast or Bottle Feedings Completely?

Seventy-three and three tenths per cent or 11 of the breast fed infants were receiving the breast or bottle at one year of age. Eighty per cent or 16 of the bottle fed infants were receiving the bottle at 1



year. Nine months was the mean age when the breast or bottle was discontinued completely in the breast fed group, compared to 9.6 months in the bottle fed group. Six and six tenths per cent or 1 of the breast fed infants were completely off the breast at 5 months of age. There were none of the bottle fed infants completely off the bottle until 8 months of age, when 10 per cent or 2 discontinued the bottle completely. Thirteen and three tenths or a total of 2 of the breast fed infants were off the breast or bottle at 9 months, and 20 per cent or a total of 3 were completely off the bottle by 10 months, with a total of 26.6 per cent or 4 of the breast fed infants completely off the breast at a year. One more of the bottle fed infants, or a total of three or 15 per cent were completely off the bottle at 10 months and a total of 4 or 20 per cent were completely off at 11 months. (See Figure 4, page 34.)

Thus the breast fed infants were discontinued from breast or bottle starting at an earlier age. Of the group of 15 breast fed infants, the percentage of those completely off the breast or bottle is slightly higher at 12 months, than in the bottle fed group of infants.

Question No. 11 Have You Started the Transition to Adult Foods? a. If Yes, What Are They?

Of the breast fed infants, transition to adult foods was complete in 100 per cent of the infants by the age of one year. Of the bottle fed infants, transition to adult foods was complete in 95 per cent or 19 of the infants. One infant had not been offered table foods before the age of 1 year in the bottle fed group.

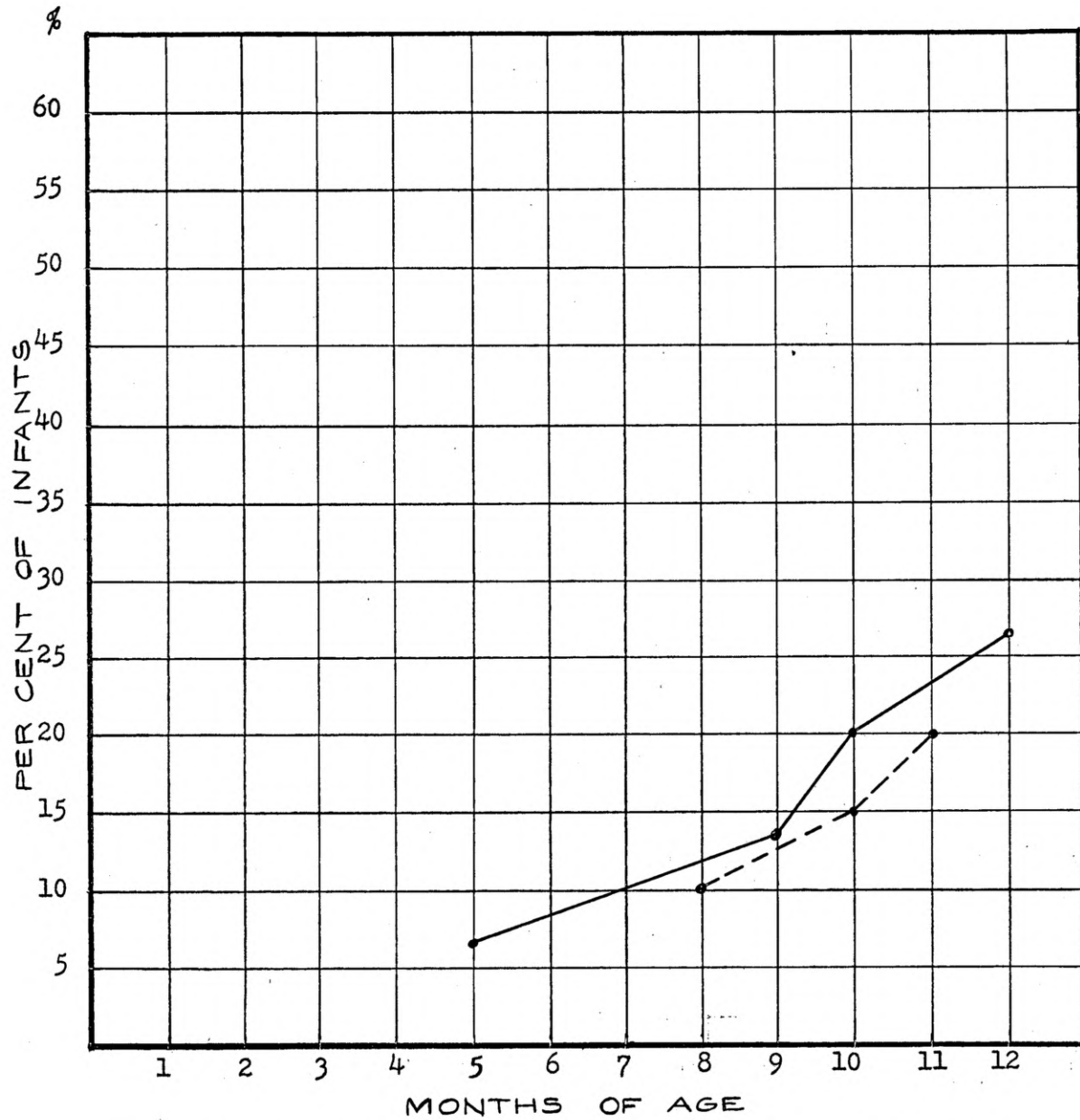


Figure 4. Age in months at which breast or bottle feeding was discontinued.

Key:  
 Breast —  
 Bottle - -

All varieties of adult foods were given to both groups of infants with the exception of meat in several cases and highly spiced foods. It appears that in introduction and adaptation to adult foods, both groups are comparable.

Question No. 12 Does Your Baby Eat With the Rest of the Family?

It was reported by the mothers of the breast fed infants that 80 per cent or 12 of the infants ate with the rest of the family while mothers of the bottle fed group reported 95 per cent or 19 infants ate with the rest of the family.

Question No. 13 Did You Consider Your Baby a Spitty Baby? a. If So, When Did the Spitting Occur? b. How Often Did it Occur?

Twenty-six and six tenths per cent of the breast fed infants were considered "spitty" or a total of 4 infants. All but one of these infants was reported as "spitty" after feedings. One mother reported the spitting as occurring often and not just in relation to feeding time. Fifteen per cent of the bottle fed infants, or a total of 3 were reported as "spitty" by the mothers. Most cases occurred after meals, and 1 mother reported spitting when the baby was "on his tummy or mad".

Question No. 14 Has Your Baby Ever Vomited? a. If So, Was This Due to Illness? b. Other Factors? c. What Were They?

Fifty-three and three tenths per cent of the breast fed infants, or 8, had vomited, as reported by the mother. In 50 per cent of these cases, vomiting was attributed to some form of illness. Other reasons given were

"gagging on foods", or "after eating several times". Of the bottle fed infants, 75 per cent or 15 were reported as having vomited at some time during the first year. Forty-seven per cent of the reasons given were attributed to illness. The other 53 per cent were: "overfeeding", "gagging on food or formula", "basal skull fracture", "allergy", and one mother could give no reason for the baby's vomiting. In both groups approximately 50 per cent of the vomiting was attributed to illness. The other 50 per cent of the incidence of vomiting was attributed to the aforementioned causes, and could not be related to the method of feeding employed.

Question No. 15 Did You Consider Your Baby a Colicky Baby?\*

One hundred per cent of the mothers in the breast feeding category reported that their infants were not colicky. Seventy per cent or 14 mothers in the bottle feeding group reported no colic among the infants. Since, according to literature cited, page 21, there is some debate as to personality traits of the mother figure related to colic in the infant, this finding seems interesting and would merit further investigation.

Question No. 16 Do You Consider Your Baby's Stools Normal Most of the Time?

Ninety-three and three tenths per cent or 14 of the mothers who breast fed their infants reported the stools as normal most of the time. One mother reported her infant's stools as "loose" much of the time.

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\*See Plate 1, Figure A, p. 60.

Ninety-five per cent or 19 of the mothers in the bottle feeding category reported the infants stools normal most of the time. One mother reported her infant's stools as not normal, but "hard". Breast or bottle milk did not appear to effect the babies' stools to an extent.

Question No. 17 Has Toilet Training Begun Yet? a. If No, When Do You Plan to Start? b. If Yes, At What Age Was it Started?\*

Toilet training had been started with 33.3 per cent or 5 of the breast fed infants. Thirty per cent or 6 of the bottle fed had been started by 1 year of age. In both groups, starting time of toilet training was in relation to "readiness of the child", past experience of the mother, and current theories as advanced by Dr. Spock. Forty per cent or 2 of the 5 infants in the breast fed group were started at 9 months, 40 per cent or 2 at 10 months and 20 per cent or 1 at 11 months. Five per cent or 1 of the bottle fed group were started at 8 months, 5 per cent or 1 at 10 months, 5 per cent or 1 at 11 months, and 15 per cent or 3 at 1 year. The mean age at which toilet training was started was 9.8 months in the breast fed group, compared to 9.1 months in the bottle fed group. (See Table I, page 38.)

Question No. 18 Is Training for Bladder Training, Bowel Training, or Both? a. When Did You Begin in Each Area?

In the breast fed group, training was in the area of bowel and bladder in 20 per cent or 3 infants, between 9 and 10 months of age, and

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\*See Plate 1, Figure B, p. 60, and Figure C, p. 60.

in the area of bowel only in 13.3 per cent or 2 infants between 10 and 11 months of age. In the bottle fed group of infants, training was in the area of bowel only in all 30 per cent or 6 infants between 8 and 12 months of age. Neither group were training for bladder only.

TABLE I  
TIME WHEN TOILET TRAINING WAS INITIATED  
IN BOTH BOTTLE AND BREAST FED GROUPS

|        | Months of Age |   |    |    |    | Total |
|--------|---------------|---|----|----|----|-------|
|        | 8             | 9 | 10 | 11 | 12 |       |
| Bottle | 1             |   | 1  | 1  | 3  | 6     |
| Breast |               | 2 | 2  | 1  |    | 5     |

Question No. 19 Why Did You Choose This Particular Time to Start This Training?

Reasons given in the breast fed group were: "firm believer", "readiness of child", "suggestion of relative", and no definite reason, while in the bottle fed group no definite reason was given.

Question No. 20 How Did Your Child React to Toilet Training?

In the breast fed group answers were: "well", "little reaction", "resists most of the time", "doesn't understand as yet", "relaxed if she goes right away", "didn't get mad at first". In the bottle fed group answers were: "game", "impatient", "got up at first--didn't want to sit", "doesn't like to sit over five minutes".

Question No. 21 How Are You Toilet Training Your Child?

In answer to this question, the breast feeding group of mothers stated they put the child on the toilet "before and after meals and naps" and "when the child indicated he wanted to go". Of the 5 mothers, 2 stated they "remained with the infant while he was on the toilet". Mothers of the bottle fed infants stated they "put the child on every hour if possible", "try to catch her", "at noon, after lunch and after meals". In both groups all but 1 mother stated she did not leave the child on the toilet more than five or ten minutes.

Question No. 22 What Words Does Your Baby Associate With Toilet Training?

Words used by children were "potty", "weewee", "poopy", "good boy", "go to the bathroom", and "grunt".

Question No. 23 Is Toilet Training Completed? a. If Yes, How Can You Tell?

In the breast fed group, 6.6 per cent or 1 infant completed toilet training by 1 year while none of the bottle fed infants had completed toilet training by 1 year. Thus in the toilet training area, there are minimal differences regarding child rearing practices in the bottle and breast fed group, 5 of the breast fed group having begun by one year of age, compared to 6 of the bottle fed group. It is interesting to note that some mothers of the breast fed group had well established reasons for beginning toilet training at a specific time while the mothers in the bottle fed group did not. One of the breast fed infants had completed toilet training by one year of age, according to the definition of



completion cited in this study, while none of the bottle fed group had completed toilet training by this time.

Question No. 24 Does Your Baby Suck His or Her Thumb or Finger?\*

Of the breast fed infants, 33.3 per cent or 5 sucked the thumb or finger compared to 20 per cent or 4 of the bottle fed infants. Thus the incidence of thumbsucking is slightly higher in the breast fed group.

Question No. 25 Does Your Baby Suck Any Other Object Consistently?

None of the breast fed group sucked another object consistently, while 1 of the bottle fed group did suck some other object consistently.

Question No. 26 Does Your Baby Seem Attached to Any Object? a. If Yes, What Is It?

Fifty-three and three tenths per cent or 8 of the breast fed infants were attached to some object, the blanket being most frequently mentioned, and other objects as "play telephone" and stuffed animals. Of the bottle fed infants 30 per cent or 6 were attached to some object, similar objects being mentioned with the inclusion of "the bottle" in this group.

Question No. 27 Are There Any Movements Associated With Thumbsucking?

Sixty per cent or 3 of the breast fed who sucked the thumb or finger as compared to 50 per cent or 2 of the bottle fed in this category, had movements associated with thumbsucking as rubbing the face against a

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\*See Plate 1, Figure D, p. 60.



blanket and curling hair around a finger. Movements were similar in both groups. Thus the thumbsucking and associated movements seem to be an effort at soothing on the child's part, since most associated movements were reported to occur at sleeping times.

Question No. 28 Have You Ever Used a Pacifier For Your Baby? a. If Yes, What Is It? b. For What Reason Do You Use a Pacifier? c. At What Age Did You First Give Your Baby a Pacifier?

A pacifier was used by 33.3 per cent or 5 breast fed infants compared to 45 per cent or 9 of the bottle fed group. All pacifiers used were of the commercial type, purchased in a store. Mothers in both groups gave reasons as follows: "to prevent thumbsucking", "to soothe or keep him content", though mothers in the bottle fed group only gave the reason "colic", since colic was reported only in this group. This finding is consistent with literature reviewed, page 20, which reveals that pediatricians recommend the use of pacifiers for colicky babies. The colic factor might partially account for the higher incidence of pacifier use in the bottle fed group of infants. Breast fed infants received the pacifier at an earlier age, the mean age being 2.4 weeks compared to an average of 4 weeks in the bottle fed.

#### Verbalization Comparisons in the Breast and Bottle Fed Infants

Questions 29, 30, 31 and 32 are related and will be answered as a group, rather than individually. Ninety-three and three tenths per cent or 14 infants of the breast fed group were saying one or more words by 1 year of age. Ninety-five per cent or 19 of the bottle fed infants were

saying one or more words by a year. Of the total group of breast fed infants 53.3 per cent were saying words meaningful to the family at 1 year of age and 45 per cent of the bottle fed group were so doing. Eight and two tenths months was the mean age at which the first word was spoken in the breast fed group compared to 9 months in the bottle fed. Thirteen or 86.6 per cent of the breast fed infants were reported as frequent vocalizers and 95 per cent or 19 of the bottle fed infants were so reported. (See Table II.)

TABLE II\*

VERBALIZATION COMPARISONS IN THE  
BREAST AND BOTTLE FED INFANTS

| Number of Infants<br>Saying Words<br>At One Year Of Age |    | Mean Age of<br>First Word Spoken<br>In Months | Number of Infants<br>Reported as Frequent<br>Vocalizers |
|---------------------------------------------------------|----|-----------------------------------------------|---------------------------------------------------------|
| Breast                                                  | 14 | 8.2                                           | 13                                                      |
| Bottle                                                  | 19 | 9                                             | 19                                                      |

\*Questions 29, 31, 32

Number of Infants Considered Active in the Breast and Bottle Fed Groups  
and Mean Age, Earliest Age and Latest Age at Which Motor Development  
Skills Accomplished in the Two Groups During the First Year of Life

Questions 33, 34, 35, 36, 37, and 38 relate to motor development skills of the infants. All 15 of the breast fed infants were considered active by the mothers and 17 of the bottle fed were also placed in this category. Two and nine tenths months was the mean age at which rolling

over occurred in the breast fed, 3.3 months in the bottle fed, a very slight variation. Only slight differences in the mean age were noted in the other motor development skills of sitting alone, crawling, standing and walking. For example, in the "standing" category the breast fed group first stood at 6 months compared to 5 months in the bottle fed, while the latest reported case was 11 months in the breast fed group and 12 months in the bottle fed group. Refer to Table III, page 44. Sixty per cent of the breast, or 9 and 65 per cent or 13 of the bottle fed groups were walking at 1 year of age. The mean age at which walking began in the breast fed group was 10.5 months compared to 11 months in the bottle fed group. The earliest and latest ages at which walking was accomplished in the breast fed group were 9 and 12 months respectively. The earliest and latest ages at which walking was accomplished in the bottle fed group were 10 and 12 months respectively. There does not seem to be a relationship between earliest and latest ages of standing and walking in the two groups. (See Table III, page 44.)

Question No. 39 Does the Baby Help With His or Her Feedings? a. If Yes, How Does He or She Help? b. At What Age Approximately Did He or She Start Helping?

In the breast fed group 93.3 per cent or 14 of the infants were helping with their feedings at one year of age compared to 80 percent or 16 of the bottle fed group. Eleven of the 14 breast fed infants were using their fingers to feed themselves while 81 percent or 13 of the 17 bottle fed infants were so doing. Fourteen per cent or 2 of the breast fed were

TABLE III\*

NUMBER OF INFANTS CONSIDERED ACTIVE IN THE BREAST AND BOTTLE FED  
GROUPS AND MEAN AGE, EARLIEST AGE AND LATEST AGE AT WHICH  
MOTOR DEVELOPMENT SKILLS ACCOMPLISHED IN THE TWO GROUPS  
DURING THE FIRST YEAR OF LIFE

|                                | Number<br>of<br>Infants | Mean Age<br>in Months | Earliest<br>Age<br>in Months | Latest<br>Age<br>in Months |
|--------------------------------|-------------------------|-----------------------|------------------------------|----------------------------|
| Active:                        |                         |                       |                              |                            |
| Breast                         | 15                      |                       |                              |                            |
| Bottle                         | 17                      |                       |                              |                            |
| Rolling over:                  |                         |                       |                              |                            |
| Breast                         |                         | 2.9                   | 4 days                       | 7                          |
| Bottle                         |                         | 3.3                   | 1                            | 9                          |
| Sit:                           |                         |                       |                              |                            |
| Breast                         |                         | 5.7                   | 2.5                          | 8                          |
| Bottle                         |                         | 5.8                   | 4.5                          | 9.5                        |
| Crawl:                         |                         |                       |                              |                            |
| Breast                         |                         | 7.9                   | 5                            | 12                         |
| Bottle                         |                         | 7.8                   | 5                            | 11.5                       |
| Stand:                         |                         |                       |                              |                            |
| Breast                         |                         | 6                     | 6                            | 11                         |
| Bottle                         |                         | 8.6                   | 5                            | 12                         |
| Number Walking<br>at One Year: |                         |                       |                              |                            |
| Breast                         | 9                       | 10.5                  | 9                            | 12                         |
| Bottle                         | 13                      | 11                    | 10                           | 12                         |

\*Questions 33, 34, 35, 36, 37, and 38

using a spoon and in one case no indication was given as to how the child helped with his feedings. Twenty-five per cent or 4 of the bottle fed infants were using a spoon. The mean ages at which the children began helping with their feedings was 7.5 months in the breast fed group and 10 months in the bottle fed group. (See Table IV, page 46.)

Question No. 40 Does He or She Hold His or Her Own Bottle or Cup? a. If Yes, At What Age Approximately Did He or She Start Holding It?

Eighty per cent or 12 of the breast fed group were holding their own bottle or cup by 1 year of age. Seventy-five per cent or 15 of the bottle fed infants were holding the bottle or cup by 1 year of age. Fifty per cent or 6 of the breast fed infants in this category were holding the cup, 41 per cent or 5 of this group were holding the bottle only, and one case was not specified as to bottle or cup. Sixty per cent or 9 of the bottle fed infants were holding the cup, 27 per cent or 4 of this group were holding the bottle, and 13 per cent or 2 of those reporting "yes" to the first part of the question did not define whether bottle or cup was being held. Nine months was the mean age in the breast fed group and 10.3 months in the bottle fed group, at which holding the bottle or cup began. Earliest and latest ages at which holding the bottle or cup was begun in the breast fed infants were 5 and 11 months respectively, and 8 and 12 months respectively for holding the cup. Earliest and latest ages for holding the bottle in the bottle fed group was 6 and 9 months respectively and 9 and 12 months for the cup. (See Table IV, page 46.)

TABLE IV\*

INFANTS IN BREAST AND BOTTLE FED GROUPS SELF FEEDING;  
 MEAN AGE CONSISTING OF FINGER FEEDING, USING  
 SPOON, HOLDING BOTTLE OR CUP AND MEAN AGE  
 AT WHICH THESE ACTIVITIES BEGAN

|                                  | Mean Age<br>In Months<br>Breast-Bottle |      | Breast: Helping<br>At One Year<br>% of No. of<br>Infants Cases |    | Bottle: Helping<br>At One Year<br>% of No. of<br>Infants Cases |    |
|----------------------------------|----------------------------------------|------|----------------------------------------------------------------|----|----------------------------------------------------------------|----|
|                                  |                                        |      |                                                                |    |                                                                |    |
| Helping feed<br>self             |                                        |      | 93.3                                                           | 14 | 80                                                             | 16 |
| Finger<br>feeding                |                                        |      |                                                                | 11 |                                                                | 13 |
| Using spoon                      |                                        |      | 14                                                             | 2  | 25                                                             | 4  |
| Starting to<br>help feed<br>self | 7.5                                    | 10   |                                                                |    |                                                                |    |
| Holding<br>bottle or<br>cup      |                                        |      | 80                                                             | 12 | 75                                                             | 15 |
| Holding cup                      |                                        |      | 50                                                             | 6  | 60                                                             | 9  |
| Holding<br>bottle only           |                                        |      | 41                                                             | 5  | 27                                                             | 4  |
| Holding<br>bottle or<br>cup      | 9                                      | 10.3 |                                                                |    |                                                                |    |

\* Questions 39, 40

Question No. 41 How Many Teeth, If Any, Does Your Baby Have at This Time?

At one year all the breast fed infants had at least one tooth and all but 1 of the bottle fed infants had at least 1 tooth. The average number of teeth at a year for both groups was six. Of the breast fed infants, 6.6 per cent or 1 had one tooth at 1 year, 6.6 per cent or 1 had two teeth, 6.6 per cent or 1 had three teeth, 6.6 per cent or 1 had four teeth, 6.6 per cent or 1 had five teeth, 33.3 per cent or 2 had eight teeth, and 6.6 per cent or 1 had nine teeth at 1 year. Of the bottle fed infants, there was 1 infant that didn't have any teeth at 1 year. Five per cent or 1 had two teeth, 25 per cent or 5 had four teeth, 25 per cent or 5 had six teeth and 40 per cent or 8 had eight teeth at the age of 1 year. (See Figure 5, page 48.)

Question No. 42 Do You Remember When Your Baby's First Tooth Appeared?

a. If Yes, Approximately How Old Was the Baby?

All of the mothers in both groups remembered when the first tooth appeared. The mean age of the appearance of the first tooth for the breast fed group was 3.4 months while in the bottle fed group it was 4 months. The earliest age at which a breast fed infant cut the first tooth was 1 month and the latest age was 11 months. This excludes the infant that had no teeth at 1 year of age. All of the breast fed infants had at least one tooth at 1 year as compared to all but 1 in the bottle fed group. The mean number of teeth was the same in both groups at 1 year of age. It appears that there is little difference in the teething of the two groups.

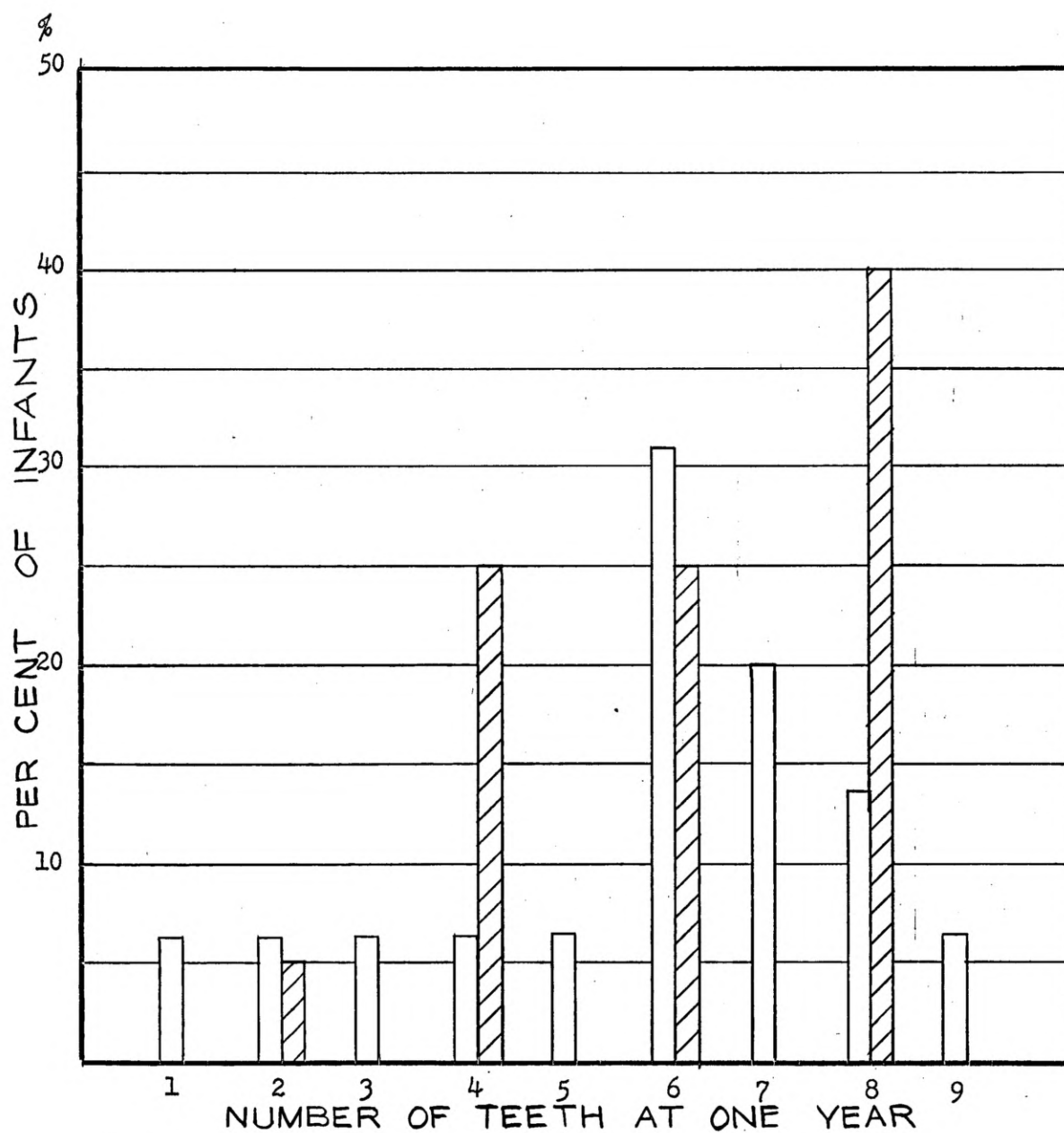


Figure 5. Comparison of number of teeth at one year of age between breast fed and bottle fed infants.

Key:  
Breast   
Bottle 



Question No. 43 Has Your Baby Ever Had a Cold? a. If Yes, Did the Baby Have a Fever, Receive Medication, Receive Treatment From a Physician?  
b. Approximately How Many Did He or She Have?

The percentage of infants in the breast fed group that had one or more colds by one year of age was 86.6 per cent or 13 infants. Sixty-two per cent or 8 of this group had from 1 to 3 colds and 38 per cent or 5 had more than 3 colds by one year of age. Ninety per cent or 18 of the bottle fed group had one or more colds by one year of age and 60 per cent or 10 of this group had 1 to 3 colds, while 40 per cent or 8 had more than 3 colds by one year of age. Part a. of this question was asked for the purpose of helping to clarify for the investigators whether the infant had a cold or perhaps another illness. Thus the investigators were able to classify the information correctly. The results indicate that a higher incidence of colds occurred in the bottle fed group during the first year, and these findings are consistent with literature reviewed in this area. Refer to pages 15 and 16.

Question No. 44 What Illnesses Has Your Baby Had?

Fifty-three and three tenths per cent or 8 of the breast fed group had sustained some type of illness by one year of age of which otitis media and "allergy" were most frequently reported. Other illnesses included upper respiratory infections, "flu", intestinal upset and "strep throat". No accidents occurred in this group. One instance of hospitalization was reported. Sixty-five per cent or 12 of the bottle fed group had sustained some type of illness by one year of age, of which "croup"

was the most frequently reported illness. Other illnesses included bronchitis, gastroenteritis and "three day measles". Two cases of accidents were reported. Two instances of hospitalization occurred in this group. There was a higher percentage of illnesses of all types in the bottle fed group during the first year. There were also two cases of accidents requiring medical attention in this group. None were reported in the breast fed group.

#### Sleep Patterns of Bottle and Breast Fed Infants

Questions 45, 46 and 47 deal with sleep patterns of the infants and will be illustrated in table form. Eighty per cent or 12 breast fed infants had a definite bedtime and 60 per cent or 9 of these breast fed infants had a definite naptime. Eighty per cent or 16 bottle fed infants had a definite bedtime and 60 per cent or 12 of these bottle fed infants had a definite naptime. Eighty per cent or 12 of the breast fed infants and 80 per cent or 16 of the bottle fed infants were reported as going to sleep when put to bed. It was reported that the infants that did not go to sleep right away usually played, but in three instances the child either cried, yelled or screamed. In all instances except one the mothers in both groups stated "that they let the infant play and paid no attention to him or her". One mother of the breast fed group stated she "gives a bottle when the infant doesn't go right to sleep". See Table V, page 51. Sleep patterns do not differ in the bottle and breast fed groups, the percentages of those having definite bedtimes, naptimes

and going to sleep when put to bed, being exactly the same in the two groups.

TABLE V\*  
SLEEP PATTERNS OF BOTTLE AND BREAST FED INFANTS

|                           | Breast Fed      |                 | Bottle Fed      |                 |
|---------------------------|-----------------|-----------------|-----------------|-----------------|
|                           | % of<br>Infants | No. of<br>Cases | % of<br>Infants | No. of<br>Cases |
| Definite Bedtime          | 80              | 12              | 80              | 16              |
| Definite Naptime          | 60              | 9               | 60              | 12              |
| Sleeps When Put<br>To Bed | 80              | 12              | 80              | 16              |

\* Questions 45, 46, 47

Infants in Breast and Bottle Fed Groups That Were Disciplined and Types of Discipline Received

Questions 48 and 49 will be described in Table VI. In the breast feeding group, 86.6 per cent or 13 of the mothers used discipline with their infants and 95 per cent or 19 of the mothers who bottle fed used discipline. One hundred per cent of the mothers in the breast feeding group used a physical form of discipline as spanking or slapping hands, while 85 per cent or 16 of the mothers who bottle fed their infants used spanking or slapping hands and the other 15 per cent or 3 used a verbal form of discipline "no no", only. See Table VI, page 52. Discipline was used by more mothers in the bottle fed group. Type of discipline also differed among the two groups, all of those who disciplined in the breast

fed group using a physical form of punishment as opposed to 3 in the bottle feeding group that used a verbal form of punishment only.

TABLE VI\*  
INFANTS IN BREAST AND BOTTLE FED GROUPS THAT WERE  
DISCIPLINED AND TYPES OF DISCIPLINE RECEIVED

|                             | Breast Fed<br>% of<br>Infants | No. of<br>Cases | Bottle Fed<br>% of<br>Infants | No. of<br>Cases |
|-----------------------------|-------------------------------|-----------------|-------------------------------|-----------------|
| Disciplined                 | 86.6                          | 13              | 95                            | 19              |
| Spanked or<br>slapped hands | 100                           | 13              | 85                            | 16              |
| "No No" only                |                               |                 | 15                            | 3               |

\* Questions 48, 49

Question No. 50 For What Reasons Have You Used Discipline?

In all cases, in both groups of infants, mothers used discipline for protective measures, for getting into things, and for exhibitions of aggressive behavior.

Data Obtained From Medical Records

The following data were obtained from medical records, with the exception of two cases, in which the mothers provided this data by mail.

Mean Weight of Breast and Bottle Fed Infants at Birth and One Year of Age,  
as Obtained From Medical Records

The mean weight at birth of the breast fed infants was 7.6 pounds compared to 7.2 pounds in the bottle fed group. At one year of age the mean weight of the breast fed infants was 20.1 pounds compared to 22.2 pounds in the bottle fed group. Thus the mean weight of the bottle fed infants exceeded the weight of the breast fed infants at one year by 2 pounds, which agrees with findings of authorities that bottle fed infants usually make a greater weight gain than breast fed infants, after 3 months of age. Medical records were not consistent in the recording of weights at intervals during the infants' first year and therefore comparison of weight spurts could not be made periodically.

Immunization Data Obtained From Medical Records of Breast Fed and Bottle Fed Infants Up to the Age of One Year

In the DPT series, 93.3 per cent or 14 breast fed infants completed the series by one year of age, as compared to 85 per cent or 17 in the bottle fed group. In the Polio series, 86.6 per cent or 13 breast fed infants had completed by a year, compared to 65 per cent or 13 bottle fed infants. Measles vaccine was received by 46.6 per cent or 7 breast fed infants and 40 per cent or 8 bottle fed infants. Smallpox vaccine was received by 73.3 per cent or 11 of the breast fed group and received by 45 per cent or 9 of the bottle fed group. The mean age for starting the DPT series in the breast fed infants was 2.3 months and in the bottle fed infants 3.1 months. Mean age for completion of DPT's was 4.8 months and

5.7 months in the breast and bottle fed groups respectively. For the Polio series, the mean age for starting the series in the breast fed infants was 3.1 months and in the bottle fed infants 3.8 months. Mean age for completion of the series was 4.9 months in the breast fed infants and 6 months in the bottle fed infants. Measles vaccine was received at the mean age of 9.3 months in the breast fed group and 9.5 months in the bottle fed group. Smallpox vaccine was received at the mean age of 7.3 months in the breast fed group and 7.2 months in the bottle fed group.

(See Figure 6, page 56.)

In the breast fed group all children had received some immunization by 1 year of age. One child in the bottle fed group had received no immunizations by 1 year of age.

In the breast fed group, one child had received the complete DPT series, polio series, measles and smallpox vaccine plus polio and DPT boosters by 1 year of age. In this group, one child had received the first two series of the DPT and nothing else in the way of immunizations by 1 year of age.

One child in the bottle fed group had the first of the DPT series and the first polio injection at age 5 months, but received no further immunizations because of "colds" as reported by the mother. One child in this group had the first two DPT series and the first of the polio injections but received no more by 1 year of age. It is interesting to note that this child received the measles vaccine at 11 months of age, but had not had the smallpox vaccine by 1 year of age. No reason was given for this irregular pattern of immunizations.

In all areas of immunizations, breast fed infants were started on immunizations earlier than bottle fed infants, though in the measles and smallpox categories, the difference in age is slight. Also, immunizations of all types were completed at an earlier age in the breast fed group than in the bottle fed group. These findings are interesting, in view of the fact that it is commonly believed today that breast fed infants receive more natural immunity against these diseases.

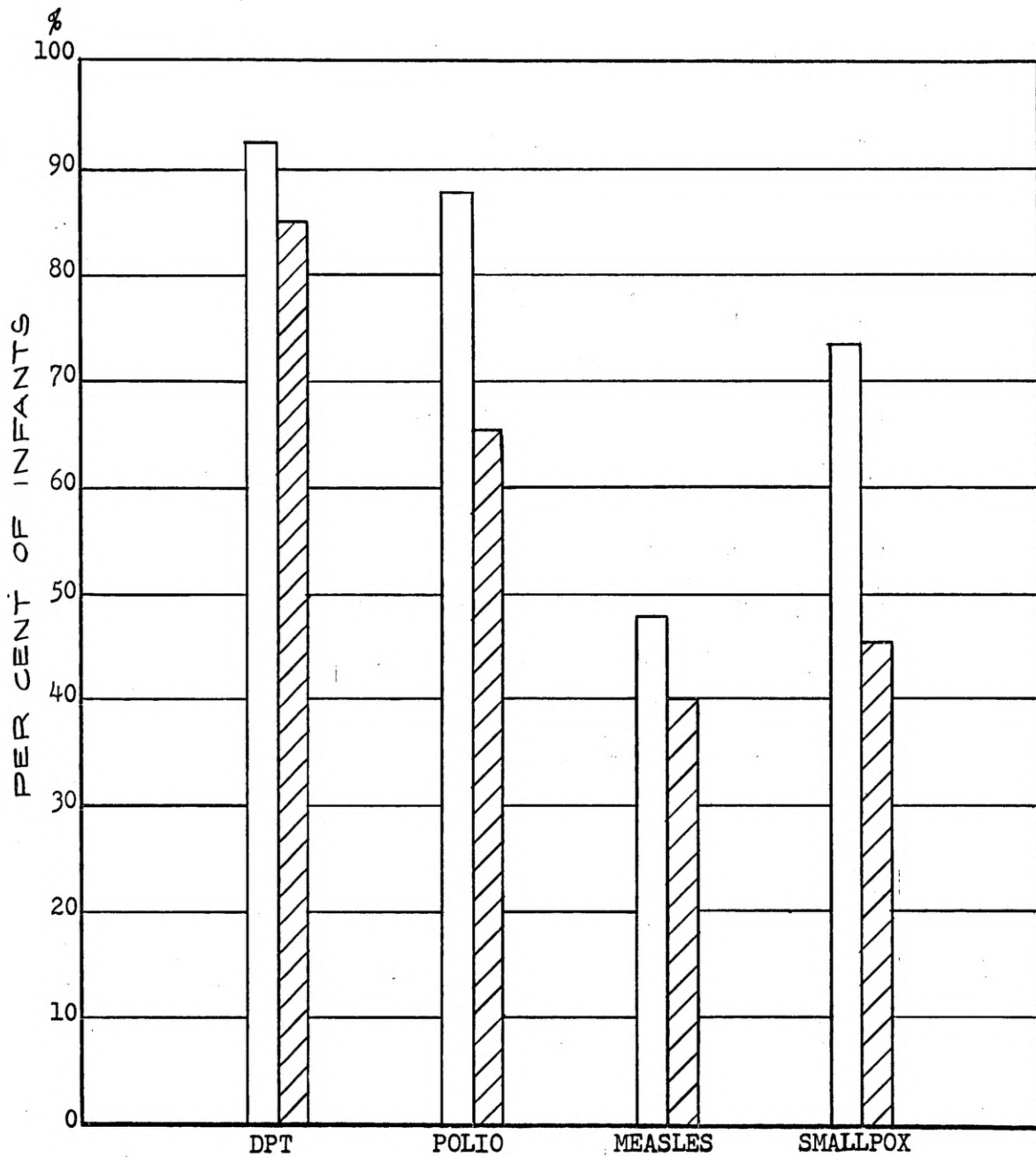


Figure 6. Per cent of breast fed and bottle fed infants who had completed immunizations at one year of age.

Key:  
Breast   
Bottle 



## CHAPTER IV

## SUMMARY, CONCLUSION AND RECOMMENDATIONS

Summary

The purpose of the study was to discover if child rearing practices and growth and development of infants might be influenced by bottle or breast feeding and to gain better insight into mother-child relationships, with the hope that this knowledge will be beneficial in future nurse-patient relationships.

A structured open-ended questionnaire combined with a personal interview was used by the investigators to obtain the information. The medical records of the infants were also a means of obtaining data. All infants in the study were born between March 16 and April 16, 1964. The information given by the mothers was carefully recorded by the investigators and observations of the infants were made when possible.

Conclusions

The first hypothesis was: mothers who breast feed their infants differ from those who bottle feed their infants in their child rearing practices regarding toilet training, age at which immunizations were started, weaning age, starting the transition to table food and discipline. There was a minimal difference only in weaning age, starting the transition to table food and toilet training. Differences were indicated in the areas of immunizations and discipline.

The second hypothesis was: infants who are breast fed to weaning time tend to suck the thumb or use the pacifier less frequently than bottle fed infants. The tendency was for the breast fed infants to suck the thumb or finger to a slightly greater extent than in the bottle fed group. However, the pacifier was used to a greater extent in the bottle fed group of infants. In reviewing the analysis of data, it can be concluded that breast fed infants had more sucking opportunity than did bottle fed infants during the first year of life. Though no attempt is being made to establish a causal relationship between this factor and the greater percentage of thumbsucking and finger sucking among the breast fed infants, it is pertinent to note that literature reviewed has indicated a positive correlation between the enforcement of oral symptoms through strengthening of the oral drive. (Refer to page 19.)

The third hypothesis states that: there is no difference in growth and development at one year of age between bottle and breast fed infants, as measured by comparison in height and weight, ability to verbalize, number of teeth, amount of illness and motor abilities in the area of walking, rolling, crawling and sitting. It was not possible to include the height measurements in our determination of growth because medical records did not contain adequate information. There was no difference in the ability to verbalize and in the number of teeth, at one year of age, in the two groups. There were minimal differences in the area of motor abilities. Differences were noted in the areas of weight gain and amount of illness, and these findings are consistent with literature cited.

Recommendations

(1.) In view of the time limitation involved in this study, a longitudinal study of this group of children, regarding child rearing practices and growth and development after the first year of life would prove informative and valuable, in relating these areas, and further establishing differences in the two groups. (2.) The investigator's review of literature did not reveal any studies relating the time of dentition with the method of milk feeding. A study to determine correlations between the time and rate of dentition between a large sample of bottle and breast fed children would be interesting. (3.) Sleep difficulties during the first year of life in relation to methods and flexibility of milk feedings would provide information on a problem common to many mothers today. (4.) A study to determine reasons for child rearing practices as reported by mothers, in relation to socio-economic status, education level and number of children would prove of interest. (5.) A survey to determine the child rearing practices among college faculty in a college community would reveal the support given to modern theories of child rearing in an educated group. (6.) Modes of discipline used in a cross-cultural sample of our population, may reveal interesting personal and attitude variables.

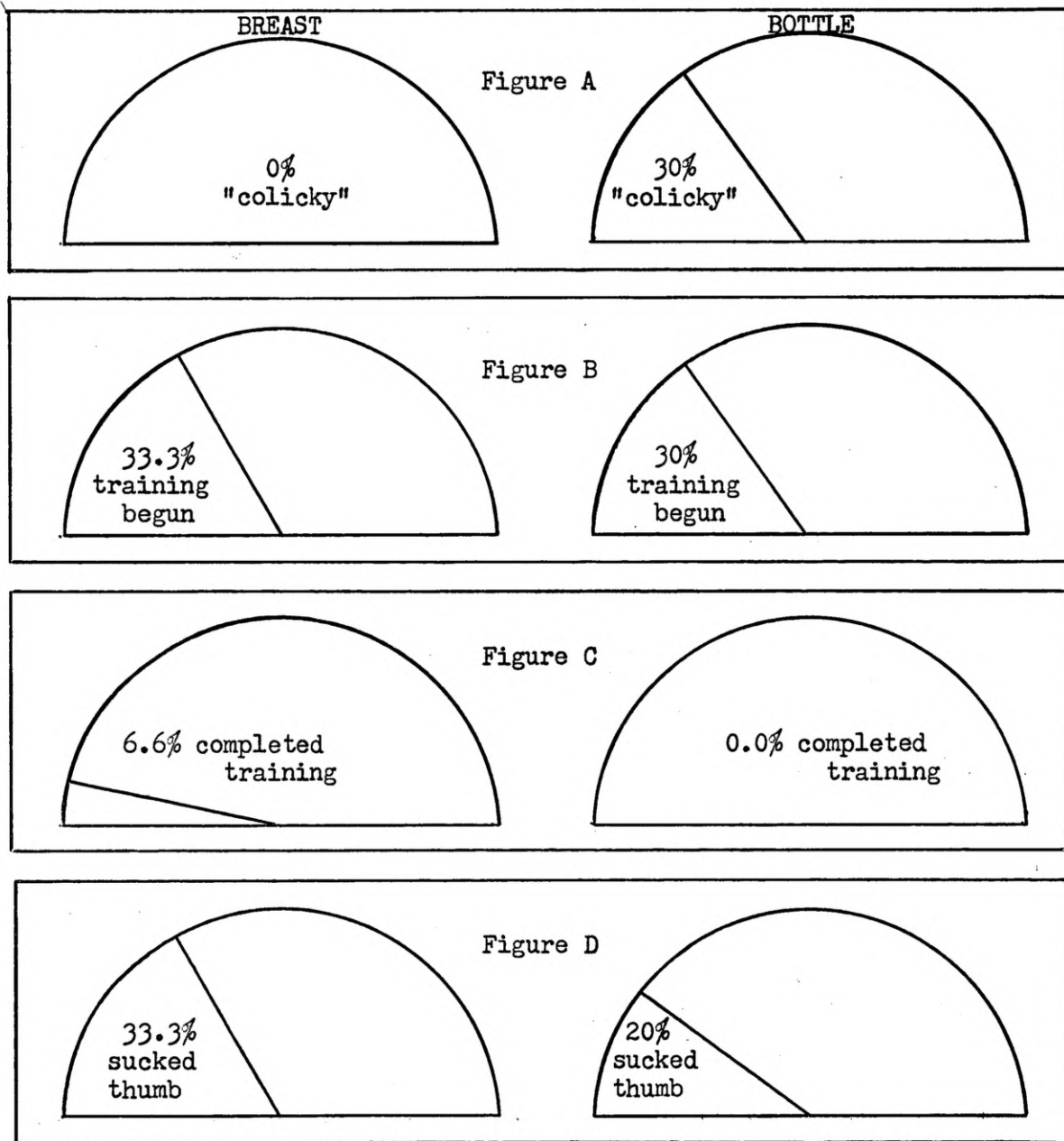


Plate I. Fig. A Occurrence of colic in breast fed and bottle fed infants.

Fig. B Toilet training initiated by one year of age.

Fig. C Toilet training completed by one year of age.

Fig. D Occurrence of thumb sucking in breast fed and bottle fed infants.

(Refers to Questions 15, 17, 23, and 24.)

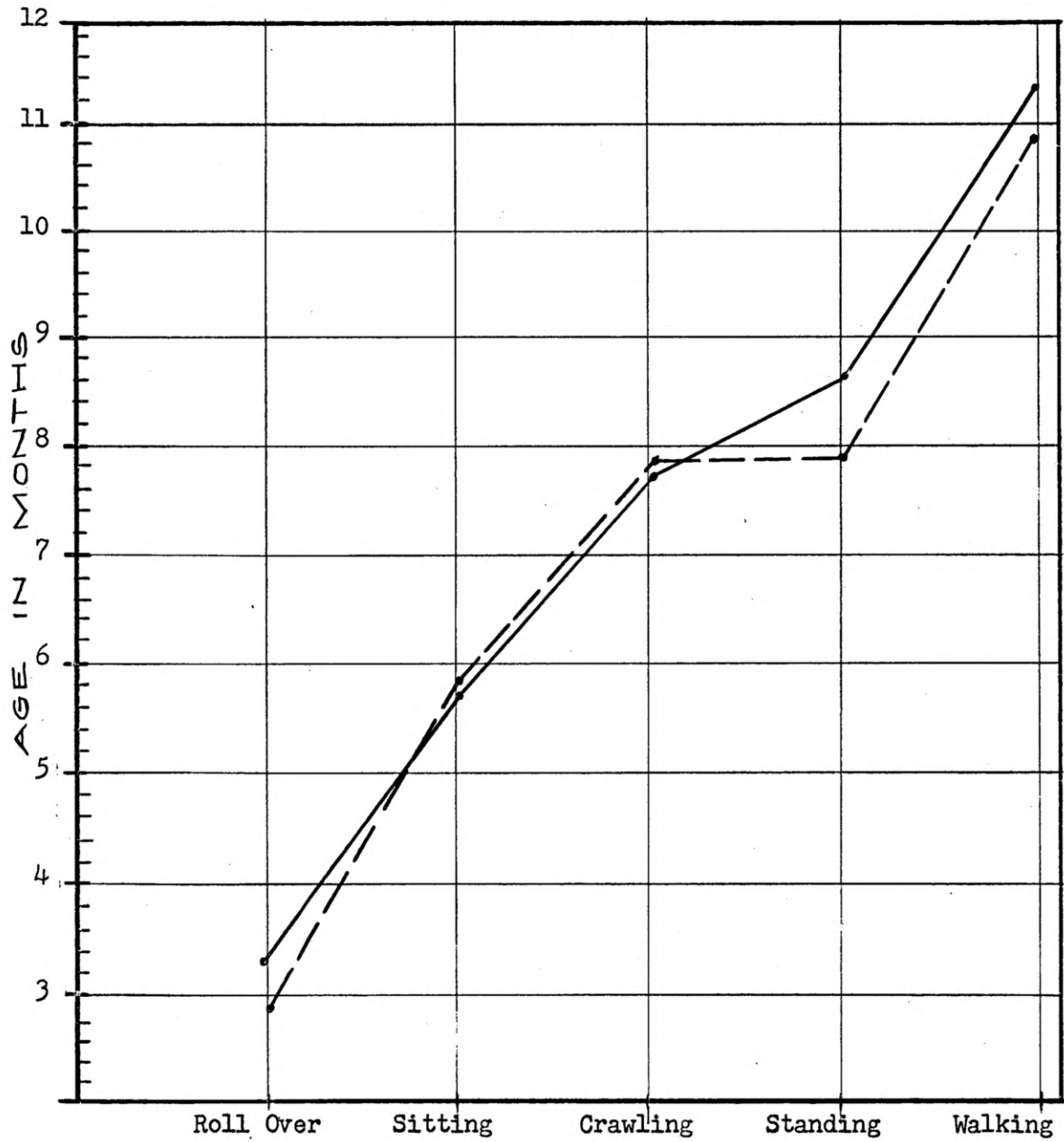


Plate II. Comparison of mean age of breast fed and bottle fed infants in achievement of specific motor abilities. (Questions 34-38)

Key:  
 Breast   
 Bottle 

**APPENDIX**

## QUESTIONNAIRE

1. Did your baby receive most of his or her milk feedings by bottle or breast until weaning was begun?
2. What position was the baby in during his or her feedings?
  - a. Breast
  - b. Bottle
  - c. Baby food
3. Approximately how long a time was allowed at each bottle or breast feeding?
4. Did you use schedule or demand feeding?
5. Has your infant received a vitamin supplement?
  - a. If yes, when was it started?
  - b. What vitamins were given?
6. Approximately when were other liquids introduced?
  - a. What were they?
  - b. How were they given?
7. Approximately when did you introduce cereals, strained foods, junior foods?
8. When did weaning begin?
9. How did you wean your baby?
10. Is the baby receiving breast or bottle feedings at any time now?
  - a. When did your baby stop receiving breast or bottle feedings completely?
11. Have you started the transition to adult foods?
  - a. If yes, what are they?
12. Does your baby eat with the rest of the family?
  - a. If no, does this influence whether he or she receives baby food or table food?
13. Did you consider your baby a "spitty" baby?
  - a. If so, when did the spitting occur?
  - b. How often did it occur?
14. Has your baby ever vomited?
  - a. If so, was this due to illness?

- b. Other factors?
  - c. What were they?
15. Did you consider your baby a colicky baby?
  16. Do you consider your baby's stools normal most of the time?
  17. Has toilet training begun yet?
    - a. If no, when do you plan to start?
    - b. If yes, at what age was it started?
  18. Is training for bladder training, bowel training, or both?
    - a. When did you begin in each area?
  19. Why did you choose this particular time to start this training?
  20. How did your child react to toilet training?
  21. How are you toilet training your child?
  22. What words does your baby associate with toilet training?
  23. Is toilet training completed?
    - a. If yes, how can you tell?
  24. Does your baby suck his or her thumb or finger?
  25. Does your baby suck any other object consistently?
    - a. If yes, what is it?
  26. Does your baby seem attached to any object?
    - a. If yes, what is it?
  27. Are there any movements associated with thumbsucking?
  28. Have you ever used a pacifier for your baby?
    - a. If yes, what is it?
    - b. For what reason do you use a pacifier?
    - c. At what age did you first give your baby a pacifier?
  29. Does the baby say any words?
  30. Does the baby say any words that are meaningful to members of the family?
  31. Approximately when was the first word spoken?
  32. Does your child vocalize frequently?



33. Do you consider your baby an active baby?
34. At approximately what age did your baby roll over?
35. Approximately at what age did your baby sit alone?
36. Approximately at what age did your baby crawl?
37. Approximately at what age did your baby pull to a standing position?
38. Is your baby walking at this time?
  - a. If yes, when did he or she start walking?
  - b. Does he or she need support or assistance?
39. Does the baby help with his or her feedings?
  - a. If yes, how does he or she help?
  - b. At what age approximately did he or she start helping?
40. Does he or she hold his or her own bottle or cup?
  - a. If yes, at what age approximately did she or he start holding it?
41. How many teeth, if any, does your baby have at this time?
42. Do you remember when your baby's first tooth appeared?
  - a. If yes, approximately how old was the baby?
43. Has your baby ever had a cold?
  - a. If yes, did the baby have a fever, receive medication, receive treatment from a physician?
  - b. Approximately how many did he or she have?
44. What illnesses has your baby had?
45. Is there a definite bedtime?
46. Is there a definite naptime?
47. Does your infant go to sleep when put to bed?
  - a. If no, what does he or she do?
  - b. How do you deal with this?
48. Have you used discipline with your child?
49. What type of discipline have you used?
50. For what reasons have you used discipline?

## OBSERVATION

1. Baby taking bottle \_\_\_\_\_ cup \_\_\_\_\_ breast \_\_\_\_\_
2. Is baby taking nourishment?
3. Toileting \_\_\_\_\_  
Child's reaction \_\_\_\_\_
4. Sucking \_\_\_\_\_
5. Hanging on to any object \_\_\_\_\_
6. Pacifier \_\_\_\_\_
7. Sounds baby makes:
8. Appears active \_\_\_\_\_
9. Roll over \_\_\_\_\_ Sit \_\_\_\_\_ Crawl \_\_\_\_\_ Stand \_\_\_\_\_ Walk \_\_\_\_\_
10. Teeth
11. Observe discipline:

## PICTURE

## ANSWER SHEET

1. Bottle \_\_\_\_\_ Breast \_\_\_\_\_
- 2.
- 3.
4. Schedule \_\_\_\_\_ Demand \_\_\_\_\_ Both \_\_\_\_\_
5. Yes \_\_\_\_\_ No \_\_\_\_\_
  - a.
  - b.
6.
  - a.
  - b.
7. Cereals \_\_\_\_\_ Strained Foods \_\_\_\_\_ Vegetables \_\_\_\_\_  
Fruits \_\_\_\_\_ Meats \_\_\_\_\_. Junior Foods: Vegetables \_\_\_\_\_  
Fruits \_\_\_\_\_ Meats \_\_\_\_\_.
  - 8.
  - 9.
10. Breast \_\_\_\_\_ Bottle \_\_\_\_\_
11. Yes \_\_\_\_\_ No \_\_\_\_\_
  - a.
12. Yes \_\_\_\_\_ No \_\_\_\_\_
  - a.
13. Yes \_\_\_\_\_ No \_\_\_\_\_
  - a.
  - b.
14. Yes \_\_\_\_\_ No \_\_\_\_\_

14. a. Yes \_\_\_\_\_ No \_\_\_\_\_

b.

c.

15. Yes \_\_\_\_\_ No \_\_\_\_\_

16. Yes \_\_\_\_\_ No \_\_\_\_\_

17. Yes \_\_\_\_\_ No \_\_\_\_\_

a.

b.

18. Bladder \_\_\_\_\_ Bowel \_\_\_\_\_ Both \_\_\_\_\_

19.

20.

21.

22.

23. Yes \_\_\_\_\_ No \_\_\_\_\_

a.

24. Yes \_\_\_\_\_ No \_\_\_\_\_

25. Yes \_\_\_\_\_ No \_\_\_\_\_

a.

26. Yes \_\_\_\_\_ No \_\_\_\_\_

a.

27. Yes \_\_\_\_\_ No \_\_\_\_\_

28. Yes \_\_\_\_\_ No \_\_\_\_\_

a.

b.

c.

29. Yes \_\_\_\_\_ No \_\_\_\_\_

30. Yes \_\_\_\_\_ No \_\_\_\_\_

31.

32. Yes \_\_\_\_\_ No \_\_\_\_\_

a.

33. Yes \_\_\_\_\_ No \_\_\_\_\_

34.

35.

36.

37.

38. Yes \_\_\_\_\_ No \_\_\_\_\_

a.

b.

39. Yes \_\_\_\_\_ No \_\_\_\_\_

a.

b.

40. Yes \_\_\_\_\_ No \_\_\_\_\_

a.

41.

42. Yes \_\_\_\_\_ No \_\_\_\_\_

a.

43. Yes \_\_\_\_\_ No \_\_\_\_\_

a.

b.

44.

45. Yes \_\_\_\_\_ No \_\_\_\_\_

46. Yes \_\_\_\_\_ No \_\_\_\_\_

47. Yes \_\_\_\_\_ No \_\_\_\_\_

a.

b.

48. Yes \_\_\_\_\_ No \_\_\_\_\_

49.

50.

Height at birth \_\_\_\_\_

Height at one year \_\_\_\_\_

Weight at one year \_\_\_\_\_

## Letter to the Mothers

March 15, 1965

Dear Mrs. \_\_\_\_\_,

We are two graduate students in nursing at Montana State College. We are interested in the study done by Mrs. Lucille Winslow and would like to do a follow-up study of your child pertaining to growth and development and child rearing practices in the first year. We are writing to ask you for your permission to do the study. This involves one personal interview with you, at your convenience, in your home during the latter part of April or the month of May.

The information would be used in a technical paper for partial fulfillment of the requirements for the Master of Nursing degree. Names and identification of participants will be excluded from this study. Enclosed is a stamped self-addressed card for your reply.

We will make telephone contact with you regarding an appointment time.

Sincerely yours,

Miss Beverly Dyas

Mrs. Malcolm Alford

Any consideration and help in this study to Miss Dyas and Mrs. Alford will be appreciated.

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Anna Pearl Sherrick, R.N., Ed. D.  
Director of Nursing  
Montana State College

## Letter to the Mothers

April 29, 1965

Dear Mrs. \_\_\_\_\_,

We received your thoughtful letter and we are sorry that we will not be able to visit you for our study. However, if it would be possible to include your baby in the study we would appreciate it if you would answer the enclosed questionnaire and return it to us. These are the same questions we are using in our interviews. Please feel free to elaborate on the answers as much as you like because the more information we have the more thorough our study will be. We would very much appreciate a picture of your baby at one year of age or thereabouts.

Thank you very much for your participation.

Sincerely,

Miss Beverly Dyas

Mrs. Malcolm Alford



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