CHILDREN'S FOOD INTAKE AND PARENTAL ATTITUDES IN SINGLE-PARENT AND NUCLEAR FAMILIES

by

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(ABSTRACT)

Parental attitudes about childrearing, parental nutrition knowledge, and the food consumption of one randomly selected six-to eight-year-old child per family were investigated in a group of 66 nuclear families and 17 single-parent families. Each family recorded three consecutive, non-weekend days of their child's food and beverage intake, and completed a demographic questionnaire, true/false nutrition knowledge test and the Parent Attitude Research Instrument (PARI). There were no statistically significant differences between groups for food consumption based on assessment using a modified version of the Basic Four food groups; however, children in single-parent families consumed school breakfast more frequently than did children in nuclear families ($p < 0.01$). Approximately 50% or more of the children in single-parent families and the children in nuclear families consumed less than the recommended number of servings of the Basic Four food groups, with

the exception of above recommended intake levels of the breads and cereals group in both family types. Parental attitudes were different in single-parent and nuclear families when measuring the factor of irritability versus warmth for parents from both family structures ($p < 0.01$) and for mothers alone in both family types ($p < 0.02$). Single-parent mothers were less warm than mothers or both parents in nuclear families. However, parental attitudes were not significantly correlated with Basic Four food group intake in either family type. Nutrition knowledge was not statistically different in single-parent and nuclear families, with a mean score of 18 out of 23 correct in both family types. In single-parent families, nutrition knowledge was positively correlated with breads/cereal intake ($r=0.64$, $p < 0.006$) and in nuclear families, nutrition knowledge was negatively correlated with meat/meat substitute intake ($r=-0.36$, $p < 0.0001$). Income and educational level were not correlated with food consumption in nuclear families, when food intake was assessed using a modified version of the Basic Four food groups. In single-parent families, educational level was positively correlated with mean number of meals consumed over a three day period ($r=0.54$, $p < 0.02$) and negatively correlated with meat and meat substitute consumption ($r=-0.50$, $p < 0.04$).

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INTRODUCTION

Single-parent families are becoming an ever increasing family structure in today's society (Collison and Futrell, 1982), represented by approximately 9.2 million families, or one sixth of all families being headed by a single individual. Several causative factors appear to be responsible for the dramatic increase in single-parent families, including a substantial increase in the divorce rate (Collison, et al., 1982; Kazak and Linney, 1983; Weinraub and Wolf, 1983), an increase in the number of children born to unwed mothers (Weinraub and Wolf, 1983), death of one parent or single person adoption (Orthner, 1981). Divorce court is second only to traffic court as a source of exposure by Americans to the legal system (Cantor and Drake, 1983).

With single-parent families playing an increasingly prominent role in society's schema, an understanding of the intricacies of these families is essential. Issues including employment characteristics, financial situation, psychological resources and domestic management (Keith and Schafer, 1982) assist in defining the parameters of this ever increasing population. Previous work in the area of family nutriture in single-parent households is limited.

The present study was designed to assess the food

intake of children aged six through eight in single-parent families where child custody was maintained at the time of the study, and in nuclear families. Children in this age group are vulnerable to nutritional deprivation with the development of potential fatigue, poor growth patterns and scholastic underachievement (Pipes, 1977; Breckenridge and Vincent, 1965). Parenting attitudes and nutrition knowledge of parents as well as selected demographic variables including income level and educational attainment were studied to determine the role they played in food consumption in six to eight year old children. Results from this study may be utilized for development of effective educational materials and parenting education courses designed to meet the specific needs of nuclear and single-parent families.

REVIEW OF THE LITERATURE

Introduction

The nutritional intake of children in single-parent families is not well documented, although Greif (1985a) reported a high intake of frozen food through informal discussion with single-parents. Goetting (1983) indicated in a summary study of divorced families that eating habits are likely to be erractic in divorced households. In a similar study, Guidubaldi and Cleminshaw (1985) determined that the marital status of a family directly related to the health of each family member. From this, they postulated that children from divorced families would thus benefit from a nutritionally balanced food intake with predictable eating schedules as a part of a preventative health care plan (Guidubaldi and Cleminshaw, 1985). Because adequate nutritional intake plays a vital role in growth and development, there is a need to assess the intake of children in single-parent and nuclear families to determine the nutritional adequacy of the diet and to assess selected factors affecting nutrient intake.

Single-Parent Families

Demographics

Single-parent families are the most rapidly growing family style in the United States today, resulting in 12 million children under the age of eighteen living with one parent (Porter and Chatelain, 1981). In 1970, one child in ten lived in a single-parent family; in 1984, one in every five children under the age of eighteen resided in a single-parent household (Norton and Glick, 1986). According to the 1980 U.S. Census Bureau, almost half of all children born today will spend at least one year living with only one parent during their development. Five percent of these children reside in a male-headed household. 1985 U.S. Bureau of the Census statistics suggested that 25.7% of all family groups in 1984 had a single parent. Custody trends appear to be changing; during the eight year period between 1970 and 1978, the number of single-parent families headed by males doubled to 423,000 (Defrain and Eirick, 1981).

Divorce rates increased at an extremely rapid rate during the 1970s, yet have shown little movement during the first half of the 1980s, while remarriage has

steadily declined since the late 1960s (Norton and Moorman, 1987). During the first quarter of 1987, an estimated 274,000 divorces occured (National Center for Health Statistics, 1987). Compared to the first quarter of 1986, the divorce statistics in 1987 are identical. Overall, the 12 month period ending in March of 1987 showed a divorce rate of 4.8 per 1000 population, which is slightly down from the 5.0 per 1000 population recorded during the 12 month period ending in March, 1986. Divorce has historically been an activity of young adults. Technological advancements, demographic variables, economic cycles, political events and social, psychological and cultural changes may individually or collectively affect behaviors (Norton and Moorman, 1987).

The predominant single-parent family unit consists of a mother and child, although the percentage of father and child families is growing at an increasingly rapid rate (Norton and Glick, 1986; and Hughes and Scoloveno, 1984). As the age of the parent increases, fathers more frequently assume the single-parent role. In 1984, almost 20% of single-parent families with the parent 45 years of age were male- headed, while only 11% of single-parent families with the parent less than 45 were male-headed families (Norton and Glick, 1986).

Effect of Divorce on Children

The majority of the research on the effects of divorce on children has surfaced since the mid-1960s. Many variables are involved in a child's response to a divorce, age of the child being one of the most important factors in postdivorce adjustment (Cantor and Drake, 1983 and Verzaro and Hennon, 1980). A literature review concerning divorce supported the idea that divorce is not always detrimental to the children involved (Collison and Futrell, 1982). In some cases, the effects of marital discord before separation and divorce may be more detrimental to the child than the divorce itself (Porter and Chatelain, 1981).

Rosenthal, Leigh and Elardo (1985) studied 30 single-parent and 30 nuclear families to assess home environment differences in both types of family structures. They concluded that children in single-parent and nuclear families live and develop in similar environments, and that mother-child relationships one year after divorce are much the same as those in intact families. However, other variables in addition to home environment may play a role in the adaptation process to divorce.

The older the child, the more likely they are to understand that they are not directly responsible, as a

result of their actions, for their parent's separation. Children aged six to 11 tend to understand divorce better than younger siblings, yet are less communicative about the situation (Egleson and Egleson, 1961). Children in this age group also may feel pressured into choosing their "favorite parent", a position that may subconsciously be forced upon them by parents (Egleson and Egleson, 1961). In a study by Wallerstein and Kelly (1975) and reported by Cantor and Drake (1983), seven and eight year olds reacted to divorce in a manner similar to that of grief associated with death. Fantasies of reconciliation, feelings of sadness, deprivation and fear were initially noted, replaced by feelings of resignation within a year. In a review of the literature, Lowery and Settle (1985) noted that while some short-term and negative effects occured in children following parental divorce, children under age five exhibited more depression, developmental disruption, eating disturbances, weight fluctuations and physical complaints than did older children. Family environment and coping, the age and sex of the children involved, and other characteristics of the children are variables which play a major role in the duration and severity of developmental impairment (Guidubaldi, Cleminshaw, Perry, Nastasi and Lightel, 1986). Conflict in the parental

dyad, custody and visitation rights, and lifestyle changes resulting from the divorce also play roles in the child's adaptation process and deserve further study (Lowery and Settle, 1985).

In a study by Eiduson, Kornfein, Zimmerman, and Weisner (1982) of single-parent females, it was noted that children were more frequently categorized as difficult or shy in this type of family structure. Child rearing tendencies showed that single mothers are less likely to sex stereotype toys or activities than are mothers in nuclear families.

Guidubaldi and Cleminshaw (1985) reported that in a study of first, third and fifth graders and their parents in single-parent and nuclear families, the psychological and physical health of the children in divorced families suffered. Single-parents rated their health, as well as the health of their children significantly lower in comparison to the nuclear families. Additionally, family income was reported to be lower because of the earning power differentials evidenced in one- versus two-parent families. Theoretically, decreased income may result in decreased food purchasing power, and poorer health status may further compound the problem by resulting in decreased food intake. An inadequate diet may continue to perpetuate the poor health status in a cyclical

manner.

Amato (1987) reported that children in female-headed families experienced diminished interactions with their fathers in terms of punishment, support and control. Amato (1987) also reported more household responsibility, autonomy, sibling conflict and less family cohesion. Similar levels of punishment and support were noted in mother-child interactions regardless of whether the family remained single-parent or again became nuclear in structure through remarriage.

Carter and Welch (1981) studied the responses of 178 married and single subjects to six vignettes which described annoying, egocentric and normal behaviors of preschool children. Responses to each vignette represented authoritarian, authoritative or permissive approaches to parenting. Authoritarian values were defined as centering around the concept that obedience is a virtue; children should be punished if actions and beliefs are not synonymous with the actions and beliefs of their parents. Authoritative values represented realistic, flexible ideas about the activities of children, and the use of parental control tempered with reasoning and guidance. Permissive values were defined as values that allowed the child to regulate his/her behavior with very little parental guidance or influence.

Results from the study indicated that females and single individuals were more likely to exhibit authoritative responses to the vignettes while males and married subjects more frequently gave authoritarian or permissive responses. Males, therefore, appeared to be less child-oriented than did females. As the age of the subject increased, both authoritarian and permissive attitudes increased. If parental attitudes play a role in nutrient intake (Sims, 1972), factors such as sex of the parent responsible for food purchasing and preparation and age of the parent should be considered when developing nutrition education courses and materials.

Hetherington, Cox and Cox (1976) conducted a two year longitudinal study of 48 divorced families and their children and a matched group of 48 nuclear families and their children. At one year following divorce, family disruption peaked with restabilization at two years. During the course of the two year period, divorced fathers became less and less available to their children, and exhibited less affection and diminished communication skills. Inconsistent discipline and lack of control of children were also noted in divorced parents when compared to nuclear parents. After a one year period, the mothers decreased their authoritarian parental control, while the authoritarian attitudes increased in

divorced fathers and the "every day is Christmas" attitude diminished.

Easterbrooks and Goldberg (1984) studied the qualitative and quantitative aspects of a father's role in parenting with 75 20-month-old children and their parents. Attitudes, behaviors and extent of father involvement were explored. Parental attitudes were measured with the Parental Attitudes Towards Child Rearing questionnaire, a compilation of questions developed by Easterbrooks and Goldberg, and also taken from other previously validated instruments. They determined that qualitative aspects of parenting, including attitudes and behavioral sensitivity had a greater impact on child development than did quantitative characteristics, such as total time spent with the child. Therefore, in single-parent families with fathers absent, qualitative behaviors may have a positive impact on child development, despite the fact that time spent with the child is lessened.

Emotional instability, whether temporary or permanent, is frequently noted in single-parent families (Porter and Chatelain, 1981) and tends to affect the children involved in a variety of ways. The child's perception of the well-being of their chief caretaker, relationship to both parents before the loss, ability to

handle stress, and significant supportive relationships affect the prognosis after loss of a parent (Porter and Chatelain, 1981). For most children, the stress of losing a parent is temporary, yet painful (Orthner, 1981). Hetherington, Cox and Cox (1982) suggested that boys may better relate to their fathers than mothers as they mature, and frequently are more difficult than girls to raise. The older single-parent father generally assumes custody of boys rather than girls. Children may be adversely affected by parental absence, with resulting impairment of psychosocial development, whether the absence is due to death, divorce, desertion, occupational absence, incarceration or other factors (Lowenstein, 1986). Longitudional research to date suggests that some negative stresses for parents and children may be attributable to divorce. Psychopathology in children going through the divorce process may be alleviated or possibly erradicated by the assistance of mental health professionals trained to focus parents on good parenting skills both during and after the divorce (Cantor and Drake, 1983). If good parenting skills courses are designed to contain information about food purchasing, preparation and sound nutritional practices, the physical health of children experiencing the effects of divorce might also be positively affected.

Effect of Divorce on Parents

Single parents often find the transition to singlehood stressful and difficult (Collison and Futrell, 1982; Burden, 1986). Parents who were previously employed and actively involved in parenting prior to the loss tend to adjust most rapidly to their altered status (Orthner, 1981). Mothers and fathers reported feelings of anger, rejection, incompetence and depression during the first year following divorce (Hetherington, Cox and Cox, 1982). Chiriboga, Catron and Weiler (1987) studied the transition process of marital separation as a function of two retrospective measures of childhood stress. They concluded that early exposure to stress may affect coping patterns with problems such as marital separation later in life. Support groups, such as Parents Without Partners, may offer valuable relief and emotional support during the transition period.

Women with custody of children tend to suffer economically (Burden, 1986; Collison and Futrell, 1982; Pagelow, 1980; Verzaro and Hennon, 1980; Pett and Vaughan-Cole, 1986; Thompson and Gongla, 1983; and Egleson and Egleson, 1961); approximately one third live below the poverty level and find it difficult to cope with insufficient funds. Banks frequently discriminate against women for loans, mortgages and other forms of

credit, further perpetuating this dilemma (Kazak and Linney, 1983; Collison and Futrell, 1982). Women are frequently underpaid in comparison to males in similar positions, unemployable, or more vulnerable to unemployment (Hill, 1986). An improvement of the labor structure for women with reduction in income disparity and occupational segregation, better child care assistance and enforcement of child-support payment may improve the status of low income women in female-headed households (Rank, 1987). Theoretically, if income levels for single-parent females are improved, a greater percentage of this income could be spent on appropriate food purchases, thereby improving nutritional status.

Men, conversely, tend to be in a slightly more advantageous financial situation with employment in the higher salaried managerial professions (Hughs and Scoloveno, 1984; Defrain and Eirick, 1981). Educational attainment in single-parent fathers is generally greater than in females, a factor significantly enhancing monetary attainment (Norton and Glick, 1986). The median weekly salary of single males is approximately $140 more each week than a single woman's salary. However, some level of impoverishment may be noted in many male headed single-parent families, in part due to the difficulty of combining household responsibilities with work related

tasks. Overtime work, and subsequently added income are therefore forfeited (Hill, 1986).

Child care is a major area of concern for single parents. Prior to separation, fifty percent of the single males had never arranged child care for their children (Hughs and Scoloveno, 1984). Despite the fact that single-parent fathers frequently do not have as much experience in child rearing as single-parent mothers with custody, a correlation may be drawn between those fathers desiring custody very much and satisfaction derived from parenting once custody is attained (Greif, 1985b). Reported relationships of fathers with their youngest children are frequently better for those men desiring child custody than for those men not desiring custody (Risman, 1986).

Single-parent fathers reported several problem areas when questioned about their altered marital status (Gasser and Taylor, 1976), although most reported greater life satisfaction than prior to divorce. Dating, business trips and job advancement tend to be areas of major concern. Sexual expression also poses a problem for some single-parent fathers, although a majority date frequently (Orthner, Brown and Ferguson, 1976). Hughes and Scoloveno (1984) reported that single-parent fathers would benefit from increased parenting knowledge focused

on areas including emotional and developmental maturation, health and nutrition.

In a study of 52 single-parent and 87 married women, Keith and Schafer (1982) studied depression related to factors such as psychological resources, management of domestic activities, and employment characteristics. They determined that less depression was reported by single-parents spending more time at work, with higher incomes, high self-esteem and low work-family strain. Married women reported less depression with less time spent at work, positive work orientation, and satisfaction with domestic tasks. Overall, married women expressed less depression than did single-parent women. Married women also rated their performance on training and caring for children, housekeeping and cooking higher than did single-parent women. Although self perception of performance may not be related to actual performance, the fact that married women perceived themselves significantly better ($p < .01$) than single-parent women at domestic tasks may indicate that nutritional intake in nuclear families is better than that of single-parent families when the female is responsible for food purchasing and preparation.

Weinraub and Wolf (1983) reported on a study of 14 matched single-parent mothers and their children and 14

matched married women and their children. Coping abilities, social networking, life stresses and mother-child interactions were studied to determine differences and similarities in mothers from single-parent and nuclear families. More stressful life changes were noted in single-parent mothers; one area of coping difficulty was that of managing the household. This factor, combined with lower incomes generally reported by single-parent families (Burden, 1986; Collison and Futrell, 1982; and Egelson and Egelson, 1961), could result in less time and money allocated towards food purchasing and preparation, and, theoretically, inadequate nutritional intake by both mothers and children in single-parent families.

Mealtime and Household Coping Patterns

Little research has been done on the homemaking skills of single-parent families. Household responsibilities may be allocated a lower priority when a single-parent attempts to combine the full-time jobs of child-rearing activities, paid employment and household chores (Sanik and Mauldin, 1986). Hence, the nutritional status of single-parent families may suffer.

Prior to divorce, a sample of 1136 single fathers indicated that they had little involvement in cooking,

cleaning, shopping and laundry (Greif, 1985c). When questioned about their lack of participation in household duties, some men responded that cooking was "dangerous", while shopping required experience because it entailed use of money and knowledge about purchases. Following divorce, the single fathers with custody of older daughters received assistance from them with household responsibilites. However, the fathers still assumed a considerable amount of the household task burden. Interestingly, the men in the study were willing to assume the non-traditional role of single-parent, yet relied on their daughters rather than sons for home related assistance.

Mendes (1976), reported that 28 of 32 fathers studied regularly cooked, cleaned, shopped and managed their homes. Orthner et al., (1976) suggested that in single-parent families with male caretakers, the responsibilities of the home are divided among all members of the family. The largest complaint in both studies appeared to be timing and coordination of household tasks. Household disruption, task overload, and general disorganization are common complaints in single-parent families (Hetherington, Cox, and Cox, 1982). In divorced families, children tend to assume a greater number of household tasks and household

responsibilities which frequently continues even after parental remarriage (Amato, 1987). If food purchasing is allocated to the children in a single-parent family, food selection and subsequent nutrient intake may conceivably suffer, depending upon age, nutrition knowledge and judgment of that child.

Studies of food consumption and nutrient intake of children in single-parent families are limited in number. However, the role of adequate nutritional intake in growth and development has been well documented (Christian and Greger, 1985; Endres and Rockwell, 1980).

Goetting (1983) reported that eating habits may be disrupted in children from divorced families; dawdling at mealtimes may be an expression of the anxiety or resentment of divorce (Egleson and Egleson, 1961). Caliendo and Sanjur (1978) reported that in family structures where the mother was nervous, discontented or displeased with the role of homemaker or mother, lower dietary quality scores for the children were noted. Therefore, it may be postulated that children in families with single-parent mothers experiencing difficulty coping with divorce may suffer from a poorer quality diet. Irregular mealtimes and "pick up" meals were common in separated households (Hetherington, et al., 1982). Similarly, eating dinner

together is less likely for divorced mothers and their children. Guidubaldi and Cleminshaw (1985) further postulated that this may be a contributing factor in overall decline in health status. Convenience foods and increased restaurant dining are time-saving adjustments that may be noted in single-parent households (Epstein, 1979).

Divorced fathers were more likely to consume meals outside the home and reported some problems with shopping and cooking (Hetherington, Cox and Cox, 1982). However, in a study by Keshet and Rosenthal (1984), more than 90% of the 49 single-parent fathers studied reported that they regularly shopped for and prepared meals.

Risman (1986) reported that 80% of the 141 single-parent fathers questioned in a study of homemaker skills were responsible for grocery shopping and food preparation, and ate dinner with their children approximately 78% of the time. Girlfriends, housekeepers, and mothers were not called upon for assistance with these tasks.

Sanik and Mauldin (1986) reported that single mothers spent 4.2 hours per day less than married women on food preparation, dishwashing and cleaning. Simpler meals were postulated as a factor partly responsible for the reduction in time noted. Nutrition information

designed specifically for single-parents is available, yet frequently only touches the surface of an extremely complex issue. The "Single Mother's Handbook" (Greywolf, 1984) is an example of one guide which presents an overview of nutrition, purchasing, kitchen equipment and budgeting in an abbreviated 14 page chapter. Clearly, nutrition information designed specifically for single-parent families would assist in food purchasing and preparation and could improve overall family health and nutriture.

Nutrient Intake and the Growth and Development of Children

Factors Affecting Growth and Nutrient Intake

During infancy and fetal development, growth occurs rapidly and is followed by a steadier, slower period of development during childhood (Robinson, Lawler, Chenoweth, and Garwick, 1986). Genetic and environmental factors, including adequate nutritional intake play a prominent role in the maturation process.

Low levels of calcium, iron, ascorbic acid and vitamin A intake are well documented in dietary surveys of children (Robinson, et al., 1986). Foods which are frequently deficient in the school age child include

milk, breads and cereals and vitamin A rich fruits and vegetables.

Low socioeconomic status has been correlated with a less adequate nutrient intake due to insufficient funds for food purchasing purposes (Ten State Nutrition Survey, 1972). In a study of 76 low-income families using the services of Women, Infants and Children (WIC) and Food Stamps, low levels of vitamin B-6, vitamins D and E, iron, calcium, zinc, pantothenic acid and magnesium were noted (Emmons, 1986). Not only do low-income families have insufficient funds to purchase adequate foods, but they frequently have inadequate refrigeration and cooking facilities, as well as low levels of nutrition knowledge to purchase a varied, balanced diet (Emmons, 1986).

Maternal age, family status and education all significantly affected nutritional habits in a study of 495 3-year-old children (Vobecky, Vobecky, Leduc, and Girard, 1986). In a similar study of 518 3-year-old children, Vobecky and Vobecky (1986) reported that socioeconomic status (SES) had a significant effect on nutrient intake. Family income, maternal education, and father's profession played a significant role in overall eating habits (Vobecky, and Vobecky, 1986).

Family interaction and factors such as parental

attitudes towards childrearing, nutrition knowledge, level of educational attainment, attitudes towards food, the emotional climate of the family, family structure and income all directly relate to a child's nutrient intake (Sims, 1972). Sims (1972) conducted a study of the nutritional status of preschool children in relation to the family environment. Using the Parental Attitudes Research Instrument (Cross and Kawash, 1968), a true false nutrition knowledge instrument (Eppright et al., 1970), and 3-24 hour food records with mothers of 163 children, Sims determined that women with a higher socioeconomic status displayed equalitarian attitudes towards child rearing, while authoritarian attitudes were noted in women with lower socioeconomic status. Children in the higher socioeconomic status families consumed more calcium and ascorbic acid. More calories, thiamin, iron and carbohydrate were consumed by children in the lower socioeconomic status families. Socioeconomic status and parenting attitudes appeared to influence the overall nutrient intake in preschool children.

In a study of nutrition knowledge, socioeconomic status and nutrient intake in older adults (Grotkowski and Sims, 1978), nutrition knowledge scores (as measured with a true/false instrument) were correlated positively with socioeconomic status. Dietary adequacy was related

to self evaluation of nutritional knowledge as well as socioeconomic status. From this, it may be postulated that nutrition knowledge and socioeconomic status may also be related to dietary adequacy in younger population groups.

Food Habits and Behaviors

Food habits and behaviors are determined by societal and cultural influences as well as environmental setting (Robinson, et al., 1986; Breckenridge and Vincent, 1965). Furthermore, studies of food preferences in young children and their parents indicated that genetics as well as environmental factors influenced intake (Olson, 1987). Sanjur (1982) reported that food habits may be studied as a function of four theoretical frameworks. The first is a multidimensional compilation of four correlates which include food preferences, consumption and ideology as well as sociocultural parameters. Secondly, food habits may be a reflection of a child's home and school environment as depicted by the Lund and Burk model. The Wenkam model reflects an ecological viewpoint of food habits, and finally, the motivational aspects of food as a social needs satisfication device is presented in Lewin's model. Clearly, numerous factors

impact on the day to day intake of children and adults.

Hertzler and Vaughan (1979) reported that parents' agreement on child-rearing techniques and their nutrition knowledge plays a greater role in influencing eating behaviors than does actions or feelings of one parent. Hertzler et al., (1979) further stated that research is needed to document the influence of family member status on the effectiveness of nutrition education programs; those targeted at women may not facilitate change in family systems where the woman does not have the authority to make decisions regarding food purchasing and preparation.

Dysfunctional family environments were reported to have a significant negative relationship with family dietary intake (Kintner, Boss, and Johnson, 1981) in a study of 42 families with children. Using the Family Environment Scale (FES) developed by Moos (1974) and the Nutritional Adequacy Reporting System (NARS) developed by Johnson, Nitzke and Vandeberg (1974), Kintner et al., (1981) determined that dysfunctional subscales of the FES were related to a less optimal dietary intake in the families studied. Kintner et al., (1981) related this information to the dysfunctional family systems associated with eating disorders. Therefore, from this study it may be postulated that if the divorce process

results in a temporary or permanent dysfunctional family system, a poorer quality diet in family members, including children, may theoretically result.

Not only is food used for sustenance, but it also serves as a means of communication, and frequently as an emotional outlet. School age children are exposed to many of the peer and social attitudes associated with food which may vary from the family's value system and may impact greatly on overall intake (Robinson, et al., 1986). Food acceptance by children is reportedly based upon a combination of factors, including modeling of parents, family and peers (Hertzler, 1983). The food attitudes and practices that are learned during childhood may affect food intake and therefore nutritional status throughout life (Sims, 1972).

Food habits ideally have three characteristics (Robinson, et al., 1986). First, optimal dietary intake allows achievement of maximum physical and mental growth and development. Secondly, degenerative diseases may be delayed or prevented by appropriate food habits. Finally, satisfying relationships and societal interaction frequently focus on food habits. An optimally fed child will theoretically exhibit greater growth and personal development.

Hertzler (1983) discussed the concept of family

solidarity as an influencing factor in determining children's food habits. Important features of family solidarity include family organization, cohesiveness, communication, and cooperation. To measure family solidarity, factors such as parent-child stimulation, parental relationships, positive reinforcement, and discipline may be studied. In the theoretical information-processing model presented by Hertzler (1983), the family situation is the key factor in determining food habits. A family that possesses nutrition information may not be able to share it because of poor parenting skills or communication skills, and therefore may not consume a balanced diet. In single-parent households, the stresses on both children (Orthner, 1981; Lowenstein, 1986; Porter and Chatelain, 1981; Guidubaldi, et al., 1986; and Cantor and Drake, 1983) and parents (Hetherington et al., 1982; Orthner, et al., 1976; and Gasser and Taylor, 1976), and individual coping skills during the years immediately following divorce may theoretically influence family solidarity and therefore food habits and intake of children and adults.

The dietary intake of elementary school children is generally better than that of adolescents or preschool children (Robinson, et al., 1986; Breckenridge and Vincent, 1965). However, in a study of 1,242 elememtary

school children in Kansas, it was determined that 90% of the participants consumed sugary products (Newell, Vaden, Aitkens and Dayton, 1985). Diet quality and energy intake varied in direct proportion, indicating that nutrition education programs for this age group would benefit from increased emphasis of nutrient dense foods. Peer influence is a big factor during this stage of development; frequently children are willing to try foods which are acceptable to a peer group when they might be hesitant to try the same food at home. Breakfast is often a missed meal for elementary school children because they are "too busy" doing other activities to eat. Consequently, deficiencies in milk, breads and cereals and fruits and vegetables may appear. Generally, the appetite of this age group is good. If feeding problems do occur, they are frequently due to extremely high parental expectations for mealtime behavior (Robinson, et al., 1986; Breckenridge and Vincent, 1965).

In a review of the literature, Hertzler and Vaughan (1979) summarized findings from several investigators indicating that less nutritionally adequate diets have been reported in families where there is no father present. Therefore, nutrition education programs designed specifically for single-parent families are essential. Because income status (Chase and Martin,

1970; Ten State Nutrition Survey, 1972) and educational attainment (Graham, 1972) are generally associated with poorer nutritional intake, and these variables are also prevalent in single-parent families, such factors should be taken into account when developing nutrition education materials.

Vitamin and mineral supplementation is frequently noted in school age children. In a sample of 1173 Canadian kindergarten and first-grade children, 90% had received a supplement of multiple vitamins at some time during their development (Issenman, Slack, MacDonald, and Taylor, 1985). Of this group, only 29% had been advised by a physician to supplement their child's diet. Chewable cartoon figures were the most frequently noted multiple vitamin choice. It was determined that vitamin supplementation in Canada far exceeds typical North American patterns of vitamin supplementation for schoolage children, despite the fact that nutritional status studies do not reflect deficiencies in Canadian children.

Ezell, Skinner, and Penfield (1985) studied the snack patterns of 225 adolescents throughout Tennessee to assess the nutritional quality and quantity of snacks consumed. From 24-hour food records, they determined that 89% of the adolescents consumed at least one snack

on the day of the study. Typical morning snacks included candy and salty foods, while evening snacks included breads and cereals. Carbonated beverages and desserts were popular throughout the day. Nutrient quality of morning snacks was generally lower, possibly due to the availability of vending machine products, and school store snack selections. Snacking appeared to be prevelant in this population; however, the snacks consumed were relatively high in calories with very little nutritive value. Based on the results of this study, it appears that nutrition education programs would benefit from a component on nutritious snack tips for adolescents; parents of schoolage children may also benefit from such programs to facilitate good snack patterns in their children at an earlier age.

Nutritional Deprivation in Children

Numerous studies have been conducted on the effects of nutritional deprivation on growing children. Data accumulated from studies conducted in Greece, Belgium, France and Holland during World War II found that children deprived of adequate nutrients and total calories reflected low weight and height for age measurements (Breckenridge and Vincent, 1965). Catch up growth may occur if deprivation does not occur for an

extended period. Keys, Brozek, Henschel, Mickelson, and Taylor (1950) conducted a controlled study of 32 mentally and physically healthy young men to determine the effects of underfeeding and later introduction of an adequate diet. Results from a 48 week period indicated that the process of recovery following starvation is not immediate but slow and gradual. Underfeeding may therefore affect children in a similar manner.

Summarization of the Literature

There are still many unanswered questions concerning the effects of divorce on children. One area of interest is the food intake of six- to eight-year-old children and factors that may influence dietary consumption. As the number of single-parent families increase, factors influencing the food intake of children, including parental attitudes towards childrearing, parental nutrition knowledge, and the relationship of income, education level, and employment status may assist in defining the parameters of this population and influence appropriate nutrition information development and dissemination to single-parents.

OBJECTIVES AND HYPOTHESES

The primary purpose of the present study was to assess the food consumption of children aged six through eight according to a modified version of the Basic Four food groups, in single-parent families in comparison with children in two-parent, nuclear families. One child in the selected age range from each family was randomly chosen for assessment. Three 24 hour recall/records were utilized to assess adequacy of food intake.

A second purpose of this study was to assess the relationships among parental attitudes, parental nutrition knowledge, and selected demographic variables and food consumption, based upon a modified version of the Basic Four food groups, of the selected six to eight year old child in each household.

The objectives of this study were as follow:

1. To assess and compare the food consumption of children aged six through eight years based on a modified version of the Basic Four food groups, using three 24 hour recall/records obtained during telephone interviews in single-parent and nuclear families.

2. To assess and compare the parental attitudes of single parent females with child custody to males and females in two-parent families using the Parental Attitudes Research Instrument (PARI).

3. To study the relationship between parental attitudes and food consumption of children aged six through eight years in single-parent and nuclear families.

4. To assess and compare the nutrition knowledge of single-parents and chief parental caretakers in nuclear families.

5. To study the relationship between nutrition knowledge and food consumption in children aged six through eight years in single-parent and nuclear families.

6. To study the relationships among income, educational attainment, and other selected demographic variables and food consumption, using a modified version of the Basic Four food groups, of six-to eight-year-old children in single-parent and nuclear families.

The null hypotheses of this study were as follow:

Ho1: There will be no difference in the food consumption of children aged six through eight years in single-parent and nuclear families, using a modified version of the Basic Four food groups for assessment.

Ho2: There will be no difference in parental attitudes of single parents with child custody, and parents in nuclear families.

Ho3: There will be no relationship between parental

attitudes and food consumption in children aged six through eight years in single-parent and in nuclear families.

Ho4: There will be no difference in nutrition knowledge of chief parental caretakers in each household.

Ho5: There will be no relationship between nutrition knowledge of chief parental caretakers and food consumption in children aged six through eight years in nuclear or single-parent families.

Ho6: There will be no relationships among income level, educational attainment and other selected demographic variables and food consumption in children aged six through eight years in nuclear and single-parent families.

METHODOLOGY

Subjects

Description

The subjects participating in the present study were single-parent and two-parent families with custody of at least one six-to eight-year-old child, and residing in the Roanoke or New River Valley of southwest Virginia. One group consisted of 17 single-parent, female headed households; the second group was composed of 66 nuclear families for a total of 83 families.

Selection

Six hundred twenty-two packets, which included a cover letter describing the study, demographic questionnaire, the Parent Attitude Research Instrument, two opscan sheets and a #2 pencil were distributed to eight groups interested in participating in the present study. These instruments were disseminated to members of the Roanoke Valley Parents Without Partners (PWP), Big Brothers/Big Sisters of the Roanoke Valley, Department of Social Services Parenting Education groups, Child Abuse Council parenting groups, first and second graders in the Blacksburg area of the Montgomery County School System, Roanoke County/Salem WIC participants, and a Catholic and

Baptist church in Blacksburg, Virginia.

Smith and Smith (1981) defined male headed, single-parent families with child custody as those single-parent families having sole custody of children at the time of their study of single-parent families. For the present study, the nuclear and single-parent families that responded to the survey with custody of children between age six and eight years at the time of the study served as the final sample. Nuclear families were defined as families with husband and wife residing in the same household.

Following completion of the demographic instrument and Parent Attitude Research Instrument, the families were asked to return the computerized opscan sheet and two page demographic instrument in the addressed, stamped envelope provided. Upon receipt of the completed PARI and demographic survey, the researcher contacted respondents to establish telephone appointments to complete the 24 hour recall/records and nutrition knowledge instrument. A total of two telephone conversations occured with each family that successfully completed the Parent Attitude Research Instrument and demographic instrument. The initial contact was designed to make a convenient appointment time for the collection of the three 24 hour recall/records and to explain

qualitative and quantitative recall/record recording procedures. The second, pre-arranged telephone contact was made to record dietary data and nutrition knowledge test responses obtained from the parent most knowledgeable about the selected child's food intake. For purposes of the present study, the chief parental caretaker was defined as the parent in each family most knowledgeable about the food intake of the six to eight year old child. After the conclusion of the final 24 hour recall/record, the chief parental caretaker was then asked to respond to the 23 statement nutrition knowledge instrument. One study participant who successfully completed all aspects of the study was randomly selected to receive a ten dollar gift certificate for dinner at a local restaurant.

A total of 83 families were compared, 17 female headed single-parent families and 66 nuclear families. Telephone and personal contacts with each of the potential population groups were made during the fall of 1986 and winter of 1987 to establish sites for packet distribution. Pretesting of the instruments was conducted with ten families during the same time period. Appropriate instrument suggestions and instruction clarifications were incorporated before final printing and distribution of the packets occured. The instruments

and cover letter were distributed during January, February, March and April of 1987.

INSTRUMENTATION

Demographic Survey (Appendix A)

This portion of the survey was designed to obtain descriptive data from the principal wage earner of each family. The principal wage earner was chosen to complete this information form in order to standardize responses. A two page, multiple choice, fill in the blank form was developed for data collection, using the Dillman method (1978) of survey development as a guideline. Areas that were addressed included parental employment status, salary range, age, sex, and number of adults and children living in each household, educational attainment, individual(s) responsible for food purchasing and preparation and number of years at the present marital status. This instrument was developed to get a more complete picture of the family structure and to select those respondents with six-to eight-year-old children for the final sample. When more than one child was recorded by the parent in the six to eight year old range, one child was randomly selected for 24 hour recall/record data collection. A coin was tossed before the initial phone call to each family; if "heads" appeared, the

oldest child became the subject and if "tails" appeared, the youngest child became the subject. No families recorded more than two children for this age range; therefore, this method of random selection was effective for the present study.

24 Hour Recall/Record (Appendix B)

Dietary intake was determined from three consecutive 24 hour recall/records verbally obtained from the parent regarding the selected six-to eight-year-old child's food intake. The researcher and trained assistants recorded the type and amount of food consumed for a three day period on modified versions of the WIC 329 form (Appendix B) designed specifically for children in this age group. Appropriate serving sizes and number were extrapolated from Basic Four food group information compiled by Whitney and Hamilton (1984) and Alford and Bogle (1982) (Appendix G). After the recall/records were completed, each of the three day intakes were tabulated as total servings of each of the Basic Four food groups. Mean three day intakes were computed for the number of servings of milk and dairy products, meat and meat substitutes, vitamin A rich fruits and vegetables, vitamin C rich fruits and vegetables, miscellaneous fruits and vegetables, and breads and cereals.

The term "recall/record" was coined for purposes of

the present study because the method of dietary survey contained elements of both a 24 hour recall and food record. Recalls and records present advantages and disadvantages as means of dietary data collection (Sanjur, 1982; Dennis and Shifflett, 1985; and Acheson, Campbell, Edholm, Miller and Stock, 1980). Recalls are inexpensive and the method of choice when selection of a dietary assessment tool is primarily a function of cost (Fanelli and Stevenhagen, 1986). They are completed in a short period of time, are easy to obtain, and yield qualitative data. Because of the verbal nature of the recall, illiterate individuals have no trouble completing them and a high degree of cooperation results. Recalls rely on memory which may be faulty, and seldom provide a complete picture of dietary intake due to the short duration of one 24 hour period. Multiple days are essential for 24 hour recall data collection in order to make generalizations about an individual's usual intake (Woteki, 1986; and Beal, 1968).

Food records may be more representative of typical intake since they generally address a 3 to 7 day time period; however, subjects may be unwilling to keep records for such a lengthy time period, resulting in decreased cooperation. Literacy is required for food record surveys, which may exclude otherwise willing

participants from a study. Regardless of the method of dietary assessment, factors such as validity and reliability of the instrument as well as the feasibility of subject response, and burden to subjects should be taken into account when choosing a dietary survey method (Woteki, 1986). Time and financial constraints aside, dietary survey methods in conjunction with clinical and laboratory data are the most accurate evaluation methods for nutritional status evaluation (Burke, 1947).

For the present study, a combination of 24 hour recalls and food records allowed a representative three day period of time to be utilized for data collection. Clarifications were possible for serving sizes, meal patterns and food mixture ingredients due to direct contact with the parents of the subjects. Therefore, an accurate set of dietary data was expected for Basic Four food group analysis. Dietary data from all selected children within both of the family structures were compared for each of the food groups. Dietary adequacy, in the form of mean food group consumption for a three day period, was correlated with parenting attitudes obtained from the PARI, percent correct responses on the nutrition knowledge instrument, mean number of meals and snacks consumed, and total number of times school breakfast and school lunch were reported. The parent

who was most knowledgeable about their child's intake was asked to record everything their child consumed for three 24 hour periods excluding weekends. Weekends tend to reflect atypical consumption patterns; therefore, weekdays were chosen as more indicative of usual intake. Thompson, Larkin and Brown (1986) reported that significant differences existed between the number of snacks and meals consumed, energy distribution, and nutrient intake between weekdays and weekends. Using data from the 1977-1978 Food Consumption Survey, they determined that weekend consumption of fat, protein and energy was greater, yet was distributed between fewer meals and snacks in adults aged 23 to 74. Theoretically, a 6-8 year old child's intake might be affected in the same manner.

All meals and snacks were recorded as accurately as possible; parents were instructed to estimate serving sizes using English measures without physically measuring intake and to discuss the school lunch and breakfast consumption with their child whenever applicable. If the child consumed food mixtures such as casseroles, parents were asked to pay attention to ingredient amounts in these dishes. Sanjur (1982) reported on a study of 161 children that were asked about school lunches and food intake at home. This information

was compared to their mothers' report of intake. As age increased, a child's ability to recall food intake improved markedly with 60.5 percent accuracy in first graders and 80.6 percent accuracy in fourth grade children. Because of the age of the children in the present study, parents were asked to review the written school lunch and breakfast menus with their children and to ask probing questions concerning qualitative and quantitative intake.

The researcher and trained assistants were instructed to avoid leading questions, and to use probing questions to clarify quantities and preparation methods as well as brand name items whenever possible when talking with the parents. The mean number of snacks and meals were tabulated from the three day period, and the number of times school breakfast and lunch were consumed was also recorded. Parents were asked whether their child consumed a vitamin supplement on a daily basis.

Nutrition Knowledge Instrument (Appendix C)

Nutrition knowledge was assessed using a true/false instrument developed by Eppright (1970). In Eppright's study, higher nutrition knowledge scores highly and positively correlated with intake of nutrients. Twenty-three true/false statements concerning nutrition

were analyzed for total number of correct responses in an assessment of parental nutrition knowledge. Because telephone interviewing was conducted, only the true or false responses to the 23 statements were recorded rather than weighted true/false responses. Determining accuracy of a weighted participant response was purely subjective, and therefore not recorded or analyzed in the statistical analysis.

Scores obtained from the nutrition knowledge tests were correlated with the dietary intake of the children studied. Single-parent and nuclear family responses also were compared based upon total scores obtained from the nutrition knowledge instrument. In the case of nuclear families, the parent most knowledgeable about the child's three day intake was asked to complete the nutrition knowledge instrument as well as the 24 hour recall/records. The researcher and trained assistants were instructed to read the 23 true and false statements to the participants following the completion of the last 24 hour recall/record in order not to influence the reporting of the dietary information. Additionally, the statements were presented to the parents in a neutral manner so that tone of voice would not influence the responses given.

Parent Attitude Research Instrument (Appendix D)

The PARI, developed by Schaefer and Bell (1958), was designed to measure parental attitudes towards child rearing. According to Sims (1972), these attitudes would theoretically have a bearing on a child's nutriture, growth and development. This instrument was developed to assess authoritarian attitudes using 115 questions and thirty two attitude scales. A modified, shortened form of the PARI was developed by Cross and Kawash in 1968. In this form, 45 statements were utilized in an attempt to measure six scales, including equalitarianism, deification, encouraging verbalization, irritability, excluding outside influences and deception. The present study was designed to measure male and female attitudes; therefore, a final scale, rejection of the homemaking role, was eliminated. The shortened form of the PARI was thus applicable to both male and female caretakers. Compared to the original form, the Cross and Kawash form of the PARI takes roughly half the time to complete as does the original form, and yields a stable score on "non"authoritarian attitudes and a slightly less stable warmth score (Cross and Kawash, 1968).

For this study, parents were asked to respond to the PARI on an opscan sheet by blackening "1" for strongly agree, "2" for mildly agree, "3" for mildly disagree and

"4" for strongly disagree for each of the 45 statements. The opscan responses were then read by the computer as "0" for strongly agree, "1" for mildly agree, "2" for mildly disagree, and "3" for strongly disagree because of the inherent design of the opscan form used for the present study. Other researchers reported use of a "+2", "+1", "-1", "-2" method of scoring (Emmerich, 1969); in the present study, use of an opscan sheet made this method of scoring impractical. For the Reversed Deification, Reversed Irritability and Reversed Excluding Outside Influences scores, scoring was reversed in order to keep a score of "1" consistently representative of "strongly agree" viewpoints. Without this scoring reversal, a score of "1" would represent a "strongly disagree" viewpoint and would not be consistent with the scoring of the Deification, Irritability, and Excluding Outside Influences scales. Each parent was asked to respond to 45 statements concerning parenting attitudes without assistance from others. Mean scores from the scales of encouraging verbalization and equalitarianism were combined to determine democratic accepting or rejecting parenting attitudes. Scores from the deification and excluding outside influences were combined to determine authoritarian attitudes or democratic acceptance. Finally, low scores on the

irritability scale reflected an irritable, as opposed to warm, attitude toward parenting. Rejection of the homemaking role, if included, would have combined with the irritability scale to produce an irritability vs. warmth factor. A filler scale, deception, was included in the shortened form of the PARI because it was not related to authoritarian attitudes in previous studies. Democratic acceptance vs. rejection, irritability vs. warmth and authoritarian attitudes vs. democratic acceptance were derived by factor analysis from the original PARI (Cross and Kawash, 1968). Schaefer and Bell suggested that greater precision and depth might be achieved by using these three factors. Therefore, they also were used for the present study. Question numbers associated with each of the scales are presented in Appendix H.

Results from the PARI were then correlated with the dietary intake of the selected children. Attitudes of parents in nuclear families were compared to those attitudes noted in single-parent households. In two-parent families, both parents completed the PARI separately so that single parent females could be compared to females from nuclear families.

PROCEDURE

Distribution of Packets

During a 13-month span between January 1986 and February 1987, organizations and school districts in the Roanoke and New River Valley were contacted to describe the research project and to present the written proposal for review. The final groups which agreed to participate in the study included the Roanoke Valley Parents Without Partners, Big Brothers/Big Sisters of Roanoke, Child Abuse Council parenting groups, the Parenting Education Program, Blacksburg first and second grade classrooms in the Montgomery County School System, Roanoke County/Salem WIC participants, and a Baptist and Catholic church in Blacksburg, VA. Appointments were made to visit each of the groups to deliver packets and to review one copy of the research instruments with the individual in charge of distribution at each site.

Screening of Packets

Packets were returned by participants between February and May, 1987 and appraised for completeness by the researcher. "Completeness" consisted of completion of the demographic instrument and PARI, and inclusion of the first name and phone number of the participant to allow follow up contact for the 24 hour recall/records and the nutrition knowledge test. Those families with incomplete

packets were excluded from the final sample.

Training of Assistants

Three assistants were hired by the researcher to aid in 24 hour recall/record and nutrition knowledge test data collection and to minimize researcher bias (Wakefield, 1966). Each of the assistants was screened from a group of applicants based upon previous experience with 24 hour recall collection and the attainment of at least one college degree in nutrition. Instructions were given to each assistant for telephone protocol, including a standard format for introduction of self and identification with the project, standard explanation to participants concerning accurate dietary intake recording procedures, and appropriate closing comments to participants following data collection. The researcher and assistants completed the data collection by telephone in a 3 week period. All data were then coded and entered into computer files by the researcher.

Statistical Analysis

The data were analyzed by the Statistical Analysis System (SAS) (SAS Institute, Inc., 1986). Statistical analyses included t-tests to determine the difference

between the means of single-parent and nuclear families for parental attitudes and nutrition knowledge. The dietary intake of six to eight year old children in each family structure was also analyzed using the t-test procedure for milk and dairy products, meat and meat substitutes, vitamin A sources, vitamin C sources, miscellaneous fruits and vegetables, and breads and cereals. Mean number of meals and snacks consumed over the three day period and total number of school breakfasts and lunches consumed were compared between groups.

Pearson product moment correlations were conducted to determine the relationship among selected demographic variables, nutrition knowledge, parental attitudes and food intake of six to eight year old children in single-parent and nuclear families.

Frequencies and percentages were tabulated on variables including income level, marital status, educational attainment, individual responsible for food purchasing and preparation, number of children and adults living in each household, and employment status to develop a more complete picture of the families participating in the study.

RESULTS AND DISCUSSION

Population Characteristics

Of the 622 packets distributed to perspective groups, 83 were completed and returned. Of those returned, seventy one (85.5%) were received from parents of elementary school children in Montgomery County, one (1.2%) from Parents Without Partners, two (2.4%) from the Roanoke Parenting Education Program, and nine (10.8%) from churches in Blacksburg, Virginia. Single-parent families (n=17) accounted for 20.5% of the sample; the remaining 79.5% of the families (n=66) were nuclear in structure. The return rate of completed packets was 13.3 percent.

Income Levels (Table 1)

The majority of the nuclear families (51.5%) earned gross incomes greater than $35,000 per year, while the greatest cluster of single-parent families (23.5%) earned between $10,000 and $14,999 per year. Fewer than one fourth (23.5%) of single-parent, female headed households earned an income of $20,000 or greater per year. Conversely, three quarters (75.8%) of the nuclear families reported a gross income of $20,000 or more per year. Disparity between incomes of females in single-parent families and both parents in nuclear families may

be explained by the fact that females in single-parent families are frequently underpaid or vulnerable to unemployment (Hill, 1986). Many live below the poverty line and utilize child support payments or government assistance to maintain an acceptable standard of living. Educational attainment may be lower in single-parent females, resulting in decreased employment potential and financial rewards. Finally, dual incomes in an increasingly higher percentage of nuclear families boosts gross income above that of single-parent families (Burden, 1986; Verzaro and Hennon, 1980 and Hill, 1986).

Table 1. Percentages of Families in Selected Income Brackets

INCOME/YR	Nuclear Families (N=66)	Single-parent Families (N=17)
less than $5000	0	17.6
$5000-9999	3.0	17.6
$10,000-14,999	9.1	23.5
$15,000-19,999	12.1	17.6
$20,000-24,999	9.1	11.8
$25,000-29,999	9.1	5.9
$30,000-35,000	6.1	0
greater than $35,000	51.5	5.9

Principal Income Earner (Table 2)

As would be expected, the principal income earner in single-parent families was identified as the single-parent female in all cases. In nuclear families, the majority of principal income earners (90.9%; n=60) were identified as the male parent; the female parent accounted for 9.1% (n=6) of the principal income earners in nuclear households. One nuclear family responded that their income was "about equal"; however, the wife completed the demographic instrument and was therefore judged to be the principal income earner. Historically, men are more likely to be employed in higher salaried positions than are women (Hughs and Scoloveno, 1984 and Defrain and Eirick, 1981). In the present study, the majority of men appeared to assume the traditional role of principal income earner. Because the sample was selected from southwest Virginia, traditional cultural values may be reflected. If a larger, metropolitan sample had participated in the present study, a wider diversity of responses would have been expected with more female principal income earner respondents.

Table 2. Percentages of Males and Females as Principal Income Earners

PRINCIPAL INCOME EARNERS	Nuclear Families (n=66)	Single-parent Families (n=17)
Male Parent	90.9	0
Female Parent	9.1	100

Present Marital Status (Table 3)

When asked about current marital status, the majority (95.4%) of nuclear families reported that they were married to their original spouse. A smaller group of nuclear families (4.6%) reported that they were remarried following a divorce. The majority of single-parent families (64.7%) were divorced, while 17.6% were separated and 5.9% were widowed. Two single-parent families (11.8%) had never been married. The greatest cluster of nuclear families (37.9%) reported that their present marital status encompassed more than 13 years (see Table 4). Almost all (94.0%) of the nuclear families had been married to their current spouse for a minimum of 7 years. Single-parent mothers reported that the majority (47.1%) had been single-parents for one to three years. Almost three quarters (70.6%) reported that they had been single-parents for six years or less. Two single-parent females did not respond to this question on the demographic instrument.

Table 3. Percentages of Families in Selected Marital Status Groups

MARITAL STATUS GROUPS	Nuclear Families (n=66)	Single-parent Families (n=17)
never married	0	11.8
married to original spouse	95.4	0
divorced	0	64.7
separated	0	17.6
widowed	0	5.9
remarried after divorce	4.6	0

Table 4. Percentages of Families in Years at Present Marital Status

YRS/PRESENT MARITAL STATUS	Nuclear Families (N=66)	Single-Parent Families (N=17)
< one year	3.0	5.9
1-3 years	0	47.1
4-6 years	3.0	17.6
7-9 years	25.8	5.9
10-13 years	30.3	0
> 13 years	37.9	11.8
no response	0	11.8

Educational Attainment (Table 5)

In both the nuclear and single-parent families, none of the principal income earners reported less than some high school education. Approximately half of the nuclear families (45.4%) indicated completion of at least one graduate degree, while 5.9% of the single-parent families reported completion of one or more graduate degrees. Approximately half of the single-parent families (47.1%) indicated some non-degree college experience. Almost three quarters of the principal income earners in nuclear families (74.2%) had college degrees, while 29.5% of the single-parent families reported attainment of a college degree. Single-parent females frequently complete less formal education than do males (Norton and Glick, 1986), and lower incomes are associated with lower levels of educational attainment. Findings from the present study appear to be supported by the literature.

Table 5. Percentages of Families at Various Educational Levels

EDUCATION	Nuclear Families (N=66)	Single-Parent Families (N=17)
No formal education	0	0
Some grade school	0	0
Completed grade school	0	0
Some high school	0	11.8
Completed high school	10.6	11.8
Some college	15.2	47.1
Completed college	16.7	11.8
Some graduate school	12.1	11.8
Completed one or more graduate degrees	45.4	5.9

Employment Characteristics (Table 6)

The majority of principal income earners in nuclear families (86.4%) worked 40 or more hours per week and none considered themselves full time homemakers. In single-parent families, the greatest cluster of households (35.3%) also worked 40 or more hours per week, while approximately one quarter of the families (23.5% each, respectively) reported part time employment or unemployment. Unlike the nuclear families which reported no homemakers as principal income earners, 17.6% of single-parent family head of households were homemakers without employment outside of the home. One nuclear family reported a retired principal income earner. Employment characteristics of the single-parent and nuclear families were consistent with a review of the literature. The majority of single-parent females reported less formal education, and less total income than did principal income earners in nuclear families. Single-parent females worked at full time jobs less frequently than did principal income earners in nuclear families and were often part time employees, unemployeed, or homemakers. Fewer hours of employment would theoretically result in diminished gross income. Single-parent mothers may choose to work fewer hours to care for children, or may be unable to find full or part time

employment because of low educational levels. Regardless of the reason, income levels are generally lower in single-parent females, whether employment outside of the home is full time, part time or not undertaken at all.

Table 6. Percentages of Families - Hours/Week of Employment

EMPLOYMENT-HOURS/WEEK	PRINCIPAL INCOME EARNERS Nuclear Families (N=66)	Single-Parent Families (N=17)
≥ 40 hrs/wk	86.4	35.3
< 40 hrs/wk	12.1	23.5
unemployed	0	23.5
retired	1.5	0
homemaker	0	17.6

Number of Children in Households (Tables 7 and 8)

Nuclear families reported slightly larger numbers of children with a mean value of 2.6 per household. Single-parent families reported a mean value of 1.9 children per household. In each family type, the majority of children were aged six to eight as would be expected since the present study focused specifically on six to eight year old children. Because nuclear parents were at their present marital status for a longer time period than single-parent families and appeared to be better educated and with higher incomes for the most part, they may have felt that they were in stable, financially secure relationships which could allow for a greater number of children.

Number of Adults in Households (Table 9)

The majority of nuclear families (93.9%) reported that two adults (self and spouse) resided in each household. One adult lived alone with the children in the majority (88.2%) of single-parent households. A total of 6.0% and 5.9% of nuclear and single families respectively, reported three or more adults 18 or older living in each household. For the nuclear families, these individuals were older children or extended family members. In single-parent families, friends or extended family members were the additional household members.

Table 7. Mean Number of Children in Single-Parent and Nuclear Families

AGE GROUPS IN YEARS	Nuclear Families (n=66)			Single-parent Families (n=17)		
	mean number of children	min.	max.	mean number of children	min.	max.
<6	0.80	0	3	0.59	0	2
6-8	1.21	1	2	1.18	1	2
9-11	0.35	0	2	0.12	0	1
12-14	0.15	0	2	0.06	0	1
15-17	0.06	0	1	0	0	0
≥18	0.03	0	1	0	0	0

Table 8. Total Number of Children in Single-Parent and Nuclear Families by Age Groups

AGE GROUPS IN YEARS	Nuclear Families (n=172 children in 66 families)	Single-Parent Families (n=33 children in 17 families)
<6	53	10
6-8	80	20
9-11	23	2
12-14	10	1
15-17	4	0
≥18	2	0

Table 9. Percentages in Families of Number of Adults in Households

NO. OF ADULTS IN EACH FAMILY	Nuclear Families (n=66)	Single-Parent Families (n=17)
1	0	88.2
2	93.9	5.9
3	3.0	5.9
4	3.0	0

Food Purchasing and Preparation in Nuclear Families (Tables 10 and 11)

In nuclear families, 90.9% of the families reported that the female parent did the food purchasing on a regular basis. Male parents as principal food purchasers accounted for 9.1% of the families. All of the nuclear families with female principal income earners (n=6) reported that those females (100%) did the food purchasing for the family. Interestingly, the female principal income earners chose a nontraditional, highly salaried career, yet retained the traditional role of food purchasing. Keith and Schafer (1982) reported that married women are less depressed with a positive work orientation and domestic task satisfaction. These values may have been represented in the present study.

Food preparation in nuclear families followed approximately the same trends, with 97.0% of females, including all the female principal income earners, preparing meals. One slight variation reported was that 3.0% (n=2) of the nuclear families shared food preparation responsibilities. None of the males reported total food preparation responsibilities, possibly because they considered the task to be "dangerous" (Grief, 1985c). Again, it is interesting that men and women in the present study continued to assume traditional food purchasing and preparation roles despite society's

changing sex roles and stereotypes. A larger sample in a metropolitan area may have reflected greater equality in division of household responsibilities.

Food Purchasing and Preparation in Single-Parent Families (Table 12)

All female parents (100%) in single-parent families reported food purchasing responsibilities. One female reported that another adult in the household was responsible for food preparation. The remainder of the respondents (n=16) reported responsibility for food preparation.

Table 10. Percentages of Individuals Responsible for Food Purchasing in Nuclear Families as Reported by Principal Income Earners

FOOD PURCHASER BY SEX	Male (n=60) PRINCIPAL INCOME EARNERS	Female (n=6) PRINCIPAL INCOME EARNERS
Male	10 (n=6)	0 (n=0)
Female	90 (n=54)	100 (n=6)
Both	0 (n=0)	0 (n=0)

Table 11. Percentages of Individuals Responsible for Food Preparation in Nuclear Families as Reported by Principal Income Earners

	Male (n=60)		Female (n=6)	
	PRINCIPAL INCOME EARNERS			
FOOD PREPARER BY SEX				
Male	0	(n=0)	0	(n=0)
Female	98.3	(n=59)	83.3	(n=5)
Both	1.7	(n=1)	16.7	(n=1)

Table 12. Percentages of Individuals Responsible for Food Purchasing and Preparation in Single-Parent Families as Reported by Female Heads of Household

PERSON RESPONSIBLE FOR FOOD PREPARATION	Food Purchasing		Food Preparation	
Self	100	(n=17)	94.1	(n=16)
Other Adult in Household	0	(n=0)	5.9	(n=1)

Nutrition Knowledge Scores (Tables 13 and 14)

In nuclear families, 100% of the respondents (n=66) answered at least 11 of the 23 nutrition knowledge questions correctly, or 47.8% correct. Single-parent families scored no less than 15 correct on the 23 question nutrition knowledge test, or 65.2% correct. One nuclear family received a perfect score with all correct responses; the highest single-parent family score was 22 of the 23 questions scored correctly. Mean scores for nutrition knowledge were 18 in both family types. There were no significant differences between the nutrition knowledge scores of single-parent and nuclear families ($p < 0.05$).

Sims (1972) reported that three quarters of the participants in her study of mothers and their children were able to answer 15 questions correctly, using Eppright and colleague's true/false nutrition knowledge test (1970). In the present study, approximately three quarters of the nuclear and single-parent families (84.7% and 70.7%, respectively) were able to answer 17 or better correctly. The increased health and nutrition consciousness of today's society may account for the improved scores.

Table 13. Nutrition Knowledge Test - Total Number of Correct Responses out of 23 and Total Percent Correct

NO. OF CORRECT RESPONSES OUT OF 23 POSSIBLE*	% Correct	PERCENTAGES OF FAMILIES SCORING NO. OF QUESTIONS CORRECTLY Nuclear Families (n=66)		Single-Parent Families (n=17)	
11	47.8	1.5	(n=1)	0	(n=0)
15	65.2	7.6	(n=5)	11.8	(n=2)
16	69.6	6.1	(n=4)	17.6	(n=3)
17	73.9	13.6	(n=9)	17.6	(n=3)
18	78.3	13.6	(n=9)	5.9	(n=1)
19	82.6	19.7	(n=13)	11.8	(n=2)
20	87.0	19.7	(n=13)	11.8	(n=2)
21	91.3	13.6	(n=9)	11.8	(n=2)
22	95.6	3.0	(n=2)	11.8	(n=2)
23	100.0	1.5	(n=1)	0	(n=0)

Table 14. Comparison of Nutrition Knowledge Scores Between Single-Parent and Nuclear Families

GROUP	Mean± SD	t
Single-parent families	18.2±2.4	-0.52*
Nuclear families	18.6±2.1	

*no statistically significant difference between mean scores.

Basic Four Food Group Consumption (Table 15)

In nuclear and single-parent families, more than half of the children (57.6% and 58.8%, respectively) consumed fewer than the recommended servings of milk and dairy products for a three day average. Although the mean intake was only slightly below the recommended intake, potential deficiencies could result over time. Slightly less than half of the children in nuclear and single-parent families (42.5% and 41.2%, respectively) consumed at or above the recommended servings of dairy products. Children in this age group may prefer carbonated beverages or other alternative beverages to milk consumption and may not receive equivalent servings of cheese, yogurt, or other milk substitutes.

In the meat or meat substitutes food group, more than three quarters of children in single-parent and nuclear families (88.2% and 86.4%, respectively) consumed approximately a full serving less than the recommended number of servings over a three day average. Children in nuclear and single-parent families did not consume adequate servings of meat or meat substitutes with 13.6% and 11.8%, respectively, meeting or exceeding intake requirements. Meat is a notoriously expensive component of the diet and may not be utilized extensively in

families unaccustomed to shopping for economical alternatives.

Vitamin A and vitamin C rich fruits and vegetables and miscellaneous fruits and vegetables were tabulated separately for children in single-parent and nuclear families. The majority of children in single-parent families consumed fewer than the recommended number of servings of vitamin A and vitamin C rich fruits and vegetables as well as fewer servings of miscellaneous fruits and vegetables (52.9%, 52.9% and 58.8%, respectively). In nuclear families, 56.1% of the children consumed fewer than the recommended number of servings of vitamin A, and 60.6% of the children consumed fewer servings than recommended of miscellaneous fruits and vegetables. However, approximately half (51.5%) of the children in nuclear families met or exceeded the recommended number of servings of vitamin C rich fruits and vegetables for their age group. Seasonality may have been a factor in decreased fruit and vegetable intake. Data was collected in late winter and spring when vitamin A and vitamin C rich choices may have proved expensive for both single-parent and nuclear families.

Breads and cereals were consumed at above the recommended number of servings each day by children in

single-parent and nuclear families. Almost three quarters of the children in nuclear families and single-parent families (71.3% and 73.6%, respectively) consumed more servings from the breads and cereals group than necessary to meet nutritional needs. Over a period of time, excess calories from this food group could result in fat deposition with the physical and psychological complications of obesity. Because many of the breads and cereals may be less expensive than other food groups, parents may have been willing to allow their children to satisfy their appetites with this food group. However, children consuming excess intake from one group may be doing so at the exclusion of other food groups with potential nutrient deficiencies resulting.

Using the t-test procedure, there were no statistically significant differences between children in single-parent and nuclear families with respect to intake of milk/milk products, meat/meat substitutes, vitamin A and C rich fruits and vegetables, miscellaneous fruits and vegetables and breads and cereals (see Table 16). Overall, the quantitave analysis of intake of all food groups, with the exception of breads and cereals, indicated that approximately 50% or more of the children in single-parent families and 50% of children from nuclear families received less than the recommended

number of servings per day. Slightly over half of the children in nuclear families (51.5%) received adequate vitamin C intake. Food intake in children may be a function of family environment or solidarity, peer environment, sociocultural upbringing, or food availability to name several factors.

The number of school lunches consumed for the three day period was not statistically different between children in single-parent and nuclear families($p < 0.05$); however, children in single-parent families consumed school breakfast more frequently than did children in nuclear families ($p < 0.01$). Several factors may be responsible for the difference. Limited income in single-parent families may make it economically more feasible for the single-parent mother to have the child consume school breakfasts. Secondly, in the majority of single-parent families studied (88.2%), one adult resided in the home. Since over half of the single-parent mothers were employed outside the home (58.8%), it would conceivably be easier for the working parent to allow the child to eat at school, rather than add morning meal preparation to the list of household tasks to be accomplished before work. Vitamin supplementation was not common in the two groups of children, and was not statistically different as measured between groups.

Through informal, subjective observation, it was noted that children from both family structures frequently consumed sugary, low nutrient snacks which may serve as a replacement for the Basic Four food groups. Ezell et al. (1985) noted that low nutrient quality snacks were often consumed by adolescents. Not only are high calorie snack foods responsible for excessive calories from sugar and fat, but they also offer low levels of the nutrients apparently ingested at below recommended levels in the children from the present study. Subjective evaluation of informal discussion with the parents participating in the present study revealed in many instances that they were embarrassed to admit what their child was consuming. An apparent gap existed between what the parents knew about nutrition (as evidenced by scores on the nutrition knowledge instrument) and what they they were allowing their children to consume. Children from each family structure were consuming an average of one or more snacks per day, many of which were nutrient sparse and calorie dense.

Because few statistically significant differences between groups or correlations between variables were noted in the single-parent and nuclear families, two additional t-test procedures were conducted (See Tables 17 and 18). The first procedure involved subdivision of

single-parent and nuclear families by nutrition knowledge scores; the second procedure divided children from single-parent and nuclear families into two groups by Basic Four food group intake. Results from the additional statistical procedures were reported below.

Single-parent and nuclear families were each divided into two groups on the basis of nutrition knowledge scores. In each family type, those families with a mean score of 18 or less correct out of 23 were one group; those families with greater than 18 out of 23 correct were a second group. From this, an assessment was made of the differences between each group of milk/dairy products, meat/meat substitutes, vitamin A rich fruits and vegetables, vitamin C rich fruits and vegetables, miscellaneous fruits and vegetables, and bread and cereal consumption in children. For the single-parent and nuclear families with high nutrition knowledge scores (n=8 and n=38, respectively), no statistically significant differences were noted for any of the aforementioned food groups ($p < 0.05$). In the single-parent and nuclear families with nutrition knowledge scores equal to or below the mean (n=9 and n=28, respectively), bread and cereal intake was different between groups ($p < 0.04$) as was the number of school breakfasts consumed over a three day period ($p < 0.05$).

These differences reflected the fact that there were true differences between family groups in those families with low scores on nutrition knowledge.

In the second procedure, children in single-parent and nuclear families were divided into two groups. Those children consuming fewer than the recommended servings of each food group were one group; those children consuming equal to or greater than the recommended servings from each food group were a second group. T-tests were conducted to determine if differences existed between groups for children from single-parent and nuclear families for intake of milk/dairy products, meat/meat substitutes, vitamin A and vitamin C rich fruits and vegetables, miscellaneous fruits and vegetables, and breads and cereals. No statistically significant differences were noted for any of the aforementioned variables ($p < 0.05$). Therefore, it appeared that food group intake was not statistically different between children in single-parent and nuclear families, regardless of whether they met or exceeded recommended intake or did not meet recommended intake of the Basic Four food groups.

Table 15. Number and Percent of Children in Families in Which Mean Recommended Three Day Food Group Intakes for the Basic Four Food Groups Were At, Above, or Below Recommended Intake for Age*

	CHILDREN IN NUCLEAR FAMILIES N=66	CHILDREN IN SINGLE-PARENT FAMILIES N=17
MILK/DAIRY PRODUCTS		
At recommended number servings/day	6.1 (n=4)	5.9 (n=1)
Above recommended number servings/day	36.4 (n=24)	35.3 (n=6)
Below recommended number servings/day	57.6 (n=38)	58.8 (n=10)
MEAT/MEAT SUBSTITUTES		
At recommended number servings/day	1.5 (n=1)	5.9 (n=1)
Above recommended number servings/day	12.1 (n=8)	5.9 (n=1)
Below recommended number servings/day	86.4 (n=57)	88.2 (n=15)
VITAMIN A RICH FRUITS AND VEGETABLES		
At recommended number servings/day	6.1 (n=4)	11.8 (n=2)
Above recommended number servings/day	37.9 (n=25)	35.3 (n=6)
Below recommended number servings/day	56.1 (n=37)	52.9 (n=9)
VITAMIN C RICH FRUITS AND VEGETABLES		
At recommended number servings/day	3.0 (n=2)	11.8 (n=2)
Above recommended number servings/day	48.5 (n=32)	35.3 (n=6)
Below recommended number servings/day	48.5 (n=32)	52.9 (n=9)
MISCELLANEOUS FRUITS/VEGETABLES		
At recommended number servings/day	0 (n=0)	0 (n=0)
Above recommended number servings/day	39.4 (n=26)	41.2 (n=7)
Below recommended number servings/day	60.6 (n=40)	58.8 (n=10)
BREADS AND CEREALS		
At recommended number servings/day	6.1 (n=4)	5.9 (n=1)
Above recommended number servings/day	65.2 (n=43)	67.7 (n=11)
Below recommended number servings/day	28.8 (n=19)	29.4 (n=5)

*See Appendix G for recommended intake for six- to eight-year-old children of the Basic Four Food Groups.

Table 16. Differences in Basic Four Food Consumption, Meal Intake, and Vitamin Supplementation in 6-8 Year Old Children in Single-Parent and Nuclear Families

	Children in Single-parent families (n=17)	Children in Nuclear families (n=66)
Milk/Dairy		
mean svgs/day ± SD	2.6±0.2	2.7±0.8
t value	-0.05	
Meat/Substitutes		
mean svgs/day ± SD	2.0±0.6	1.9±0.7
t value	0.34	
Vitamin A		
mean svgs/day ± SD	0.4±0.3	0.4±0.4
t value	-0.25	
Vitamin C		
mean svgs/day ± SD	1.0±0.7	1.1±0.8
t value	-0.24	
Misc. Fruits/Vegetables		
mean svgs/day ± SD	1.7±0.9	1.7±1.4
t value	0.11	
Breads/Cereals		
mean svgs/day ± SD	4.4±1.0	4.6±1.3
t value	-0.68	
Vitamin Supplementation (1="yes", 2="no")		
mean ± SD	1.7±0.4	1.6±0.4
t value	0.07	
Snacks per day		
mean ± SD	1.2±0.6	1.3±0.7
t value	-0.74	
Meals per day		
mean ± SD	2.9±0.	2.9±0.1
t value	-0.71	
School breakfast/3 days*		
mean number ± SD	1.0±1.4	0.1±0.5
t value	2.57	
School lunch/3 days		
mean number ± SD	1.7±1.3	1.9±1.1
t value	-0.53	

*statistically different ($p < 0.01$)

Table 17. Differences in Basic Four Food Consumption, Meal Intake, and Vitamin Supplementation in 6-8 Year Old Children in Single-Parent and Nuclear Families by High Nutrition Knowledge Scores (>18 Correct)*

	Children in Single-Parent Families (n=8)	Children in Nuclear Families (n=38)	t value
Milk/Dairy Products	2.8±1.3	2.8±1.0	0.04
Meat/Meat Substitutes	1.9±0.6	1.8±0.6	0.72
Vitamin A	0.4±0.3	0.5±0.5	-0.36
Vitamin C	1.3±0.6	1.2±0.8	0.45
Miscellaneous Fruits/Vegs.	2.1±1.1	1.7±1.2	0.93
Breads/Cereals	5.0±1.0	4.6±1.1	0.91
Vitamin Supplementation (1=yes, 2=no)	1.9±0.4	1.8±0.4	0.54
No. of Snacks per day	1.2±0.6	1.4±0.7	-0.41
No. of Meals per day	3.0±0.0	2.9±0.2	0.74
No. of School Breakfast/3 days	0.8±1.4	0.1±0.5	1.24
No. of School Lunch/3 days	1.4±1.5	1.9±1.1	-1.22

values reported as mean± SD
*(no statistically significant differences between groups)

Table 18. Differences in Basic Four Food Cosnumption, Meal Intake, and Vitamin Supplementation in 6-8 Year Old Children in Single-Parent and Nuclear Families by Low Nutrition Knowledge Scores (≤18 Correct)

	Children in Single-Parent Families (n=9)	Children in Nuclear Families (n=28)	t value
Milk/Dairy Products	2.6±1.1	2.6±0.6	-0.03
Meat/Meat Substitutes	2.1±0.7	2.2±0.7	-0.44
Vitamin A	0.5±0.4	0.5±0.5	-0.05
Vitamin C	0.9±0.8	1.1±0.8	-0.70
Miscellaneous Fruits/Vegs.	1.5±0.7	1.8±1.7	-0.83
Breads/Cereals*	3.9±0.8	4.8±1.5	-2.11
Vitamin Supplementation (1=yes, 2=no)	1.6±0.5	1.6±0.5	-0.08
No. of Snacks per day	1.2±0.7	1.4±0.8	-0.59
No. of Meals per day	2.8±0.3	3.0±0.1	-1.18
No. of School Breakfasts/3 days**	1.3±1.6	0.1±0.6	2.28
No. of School Lunches/3 days	2.1±1.3	1.9±1.2	0.39

values reported as mean± SD
*statistically different (P< 0.04)
**statistically different (p< 0.05)

Parental Attitudes
(Tables 19 and 20)

Using the three factors of democratic acceptance vs. rejection, irritability vs. warmth and authoritarianism vs. democratic acceptance determined through factor analysis for the PARI (Cross and Kawash, 1968), there appeared to be one statistically significant difference between single-parent and nuclear families in parenting attitudes, that of the irritability vs. warmth factor ($p < 0.01$). Single-parent mothers in the present study were less warm than parents in nuclear families.

When comparing mothers in single-parent families with mothers in nuclear families using the three aforementioned factors, the factor of irritability vs. warmth was the only area where the two groups of women were statistically different ($p < 0.02$). Mothers in single-parent families were again less warm than mothers in nuclear families. When considering the financial and personal stresses that are well documented in single-parent families, a somewhat less warm attitude toward child rearing may be expected.

Overall, single-parent and nuclear families appeared to present democratic acceptance attitudes rather than rejection attitudes (scores of 0.7 and 0.9, respectively, where 0=democratic acceptance and

3=rejection), and democratic acceptance attitudes rather than authoritarian attitudes (scores of 3.0 and 2.9, respectively, where 0=authoritarian and 3=democratic acceptance). Although single-parent females were significantly less warm than parents in nuclear families, scores for both types of families indicated that were more likely to have warm attitudes than irritable attitudes (scores of 2.1 and 2.4, respectively, where 0=irritable and 3=warm). Attitudes for both types of families towards child-rearing were therefore nonauthoritative, warm and accepting rather than irritable, authoritarian, and rejecting. Because the sample was selected from a relatively restricted area, attitudes may have been affected by societal norms in the southwest region of Virginia.

Table 19. Differences Between Parental Attitudes in Single-Parent and Nuclear Families

Attitudes	Single-Parent Families (n=17)	Nuclear Families (n=66)	t
Democratic Acceptance vs. Rejection (a)	0.7±0.3	0.9±0.4	-1.48
Irritability vs. Warmth (b)*	2.1±0.4	2.4±0.5	-2.39
Authoritarian vs. Democratic Acceptance (c)	3.0±0.3	2.9±0.3	0.89

Values represent mean ± SD

(a) low score=democratic acceptance
(b) low score=irritability
(c) low score=authoritarian
*statistically different ($p < 0.01$)

Table 20. Differences Between Parental Attitudes in Mothers in Single-Parent and Nuclear Families

Attitudes	Single-parent families (n=17)	Nuclear families (n=66)	t
Democratic Acceptance vs. Rejection (a)	0.7±0.3	0.8±0.4	-0.78
Irritability vs. Warmth (b)*	2.1±0.4	2.4±0.5	-2.24
Authoritarian vs. Democratic Acceptance (c)	3.0±0.3	2.9±0.3	0.83

Values represent mean ± SD

(a) low score=democratic acceptance
(b) low score=irritable
(c) low score=authoritarian
*statistically different ($p < 0.02$)

Relationship Between Selected Variables

Pearson product moment correlation coefficients were used to determine if relationships existed between the income, employment status, educational level, parental attitudes, nutrition knowledge and Basic Four Food Group intake of single-parent and nuclear families. Statistically significant correlations do not suggest cause and effect relationships; however, theoretical explanations contributing to the relationships will be presented in the following sections. Correlations of r=0.50 or greater and r=-0.50 or greater at the 0.05 level or lower were considered statistically significant (Hinkle, Wiersma and Jurs, 1979).

Nuclear Families-Relationship Between Selected Variables (Tables 21 and 22)

In nuclear families, there were no statistically significant relationships between the selected variables. Because of this, correlation values that were considered "low positive or negative correlations", with r=0.30 or greater and r=-0.30 or greater were examined. Values less than or equal to r=0.29 and r=-0.29 were not presented for purposes of the present study, because only slight correlations, if any, may be interpreted at this

level (Hinkle et al., 1979; Huck, Cormier & Bunds, 1974).

With this adjustment, several correlations were then noted in nuclear families. Nutrition knowledge was negatively correlated with the factor of irritable versus warm parenting attitudes ($r=-0.31$, $p < 0.0003$), and consumption of meats/meat substitutes ($r=-0.36$, $p < 0.0001$). Positive correlations were noted between nutrition knowledge and variables including income ($r=0.30$, $p < 0.0005$), and educational attainment ($r=0.46$, $p < 0.0001$) and the factor of authoritarian attitudes versus democratic acceptance ($r=0.33$, $p < 0.0001$) in nuclear families. Individuals with more education may have received some nutrition information in school, contributing to a higher score on the nutrition knowledge test. Additionally, it may be theorized that individuals completing more levels of formal education may be motivated to continue informal education as adults through independent reading or adult courses on nutrition related topics. Higher levels of income may allow individuals to purchase nutrition information, either in the realm of classroom education or reading materials related to nutrition. Low scores on the irritability versus warmth parenting attitudes factor (reflecting irritability), were negatively correlated with higher levels of nutrition knowledge and higher scores on the

authoritarian versus democratic acceptance parenting attitude factor (reflecting democratic acceptance) were positively correlated with a higher nutrition knowledge score. Parents that are more accepting of their children may be more interested in improving their environment and health, consequently a greater effort may be made to increase nutrition knowledge. High scores on the nutrition knowledge instrument were correlated with decreased meat/meat substitute intake. Parents knowledgeable about nutrition may be aware of the relationship between a diet high in saturated fat and cholesterol and health complications, and may be limiting their children's intake of meat products. However, a diet low in meat may be concurrently low in vitamin B12, iron, protein and other valuable nutrients and, over time, nutrient deficiencies could result. No practical explanation may be given for the positive correlation between greater irritability and a greater number of correct responses on the nutrition knowledge test.

As would be expected, a moderately negative correlation was noted between authoritarian attitudes and democratic acceptance in parenting ($r=-0.47$ $p<0.0001$). By definition, authoritarian attitudes and accepting attitudes would tend to be inversely related.

Employment status and income level showed a low

negative correlation ($r=-0.37$, $p<0.0001$) as would be expected based upon the wording of the demographic instrument (Appendix A). The questions pertaining to employment and income were arranged so that the highest levels of income were coded as a large score, while a low score on employment reflected full time employment. Therefore, the negative correlation in effect showed a relationship between $\geq$ 40 hours per week of employment and high levels of income when coding was accounted for in the questionnaire. Employment status was positively correlated with vitamin A intake ($r=0.33$, $P < 0.0002$). Based upon the wording of the demographic instrument, the children of unemployed parents would have a higher intake of vitamin A. No practical explanation may be given for this phenomena.

The lack of a diverse population interested in participating in the present study may be responsible for the limited number of significant relationships noted in the nuclear families.

Table 21. Relationship of Employment to Selected Variables in Nuclear Families

	Income Level	Vitamin A Intake
Employment	r -0.37 p<0.0001	r 0.33 p<0.0002

Table 22. Relationship of Nutrition Knowledge to Selected Variables in Nuclear Families

	Meats/Subs.	Demo. Accept. vs. Authoritarian	Warmth vs. Irritability	Income	Education
Nutrition Knowledge	r -0.36 p <0.0001	r 0.33 p <0.0001	r -0.31 p<0.0003	r 0.30 p< 0.0005	0.46 p <0.0001

Single-Parent Families - Relationship Between Selected Variables (Table 23)

In single-parent families, nutrition knowledge scores were positively correlated with bread and cereal intake ($r=0.64$, $p < 0.006$). Parents with higher levels of nutrition knowledge may have been aware of the importance of iron, B vitamins and fiber in the breads and cereals group, and emphasized intake of this group in their child's diet. Consequently, many children in single-parent families consumed an excess amount of breads and cereals, possibly to the exclusion of other food groups. Excess caloric intake may subject adults or children to the health hazards of obesity.

A negative correlation was noted between high scores on authoritarian attitudes (which, in effect, repesents democratic acceptance parental attitudes when coding is accounted for) and an increase in number of school lunches consumed ($r=-0.48$, $p < 0.05$). The more accepting the single-parent mother, the less likely the child was to consume school lunch. Possibly, mothers in single-parent families were more willing to listen to their child's desires concerning lunch consumption, and more willing to accomodate those wishes. If a child disliked the quality or quantity or selection of school lunches, the child's mother might have been more likely to pack

the child a lunch from home whereas an authoritarian parent might not. Peer pressure to boycott school cafeteria food is one theory why a child might choose to bring a lunch from home.

A higher level of education in single-parent families was positively correlated with an increase in the mean number of meals consumed each day ($r=0.54$, $p<0.02$). A better educated adult may be more aware of the impact of a healthy diet on adequate growth and development of children, and plan three meals per day accordingly. An increase in number of meals, however, does not ensure balanced nutrient or caloric intake. Education and income were also positively correlated in single-parent families ($r=0.59$, $p<0.01$); as educational attainment increased, gross income increased. Individuals with more formal education are more frequently employed in higher salaried positions, hence greater gross income. High intake of meat/meat substitutes was negatively correlated with greater levels of educational attainment in single-parent mothers. As mentioned earlier, extensive media attention and scientific literature have focused on the hazards of high fat and high cholesterol diets. More educated single-parent mothers may have consciously reduced total meat intake by their children, without

regard to the nutritive contribution of iron, protein and B12 to the diet. Employment was negatively correlated with income ($r=-0.53$, $p < 0.03$). The demographic instrument (Appendix A) associated a low score with full time employment and a low score with low income. When interpreting the results with the coding scheme in mind, it appeared that high education levels were associated with increased income. Hypothesized explanations for this correlation were discussed in previous sections.

The person primarily responsible for food purchasing was positively correlated with the person responsible for food preparation ($r=0.57$, $p < 0.02$). The mother in single-parent families was responsible for all food purchasing and for food preparation in 16 of the 17 families participating in the present study. Therefore, a correlation between these two variables was expected. If a greater number of single-parent families had participated in the study, a greater number of children, friends, hired housekeepers, or extended family members might have shared food purchasing and preparation responsibilities.

School lunch intake was positively correlated with school breakfast intake ($r=0.49$, $p < 0.04$). Mothers in single-parent families may have allowed or encouraged

children to consume school meals for several reasons. They may have been under time or financial constraints, which necessitated school meals rather than meals from foods at home. Secondly, mothers may have felt that school breakfast and lunches were more nutritious than meals that they were able to prepare and therefore advocated school meals.

High levels of vitamin A rich fruits and vegetables were positively correlated with both milk and dairy products and vitamin C rich fruits and vegetable intake in single-parent families. Vitamin A and C are prevelant in fruits and vegetables, and single-parent mothers concerned with providing these food groups may have made an effort to include them both simultaneously in their child's diet, followed with a glass of milk or other dairy substitute such as yogurt. School breakfasts and lunches may have provided rich sources of these food groups.

The mean number of meals per day were positively correlated with vitamin C intake in single-parent families ($r=0.53$, $p < 0.03$). When more meals were consumed by children in single-parent families, more opportunities were created to include vitamin C rich fruits and vegetables in those meals. Single-parent families may have made a conscious effort to do so, or

the vitamin C content in school breakfast and lunch boosted overall intake.

In the present study, a limited number of statistically significant correlations were noted between selected variables in single-parent and nuclear families. An increased sample size and more diverse sample might have increased the number of statistically significant results. In behavioral research, it is difficult to control extraneous variables that may also have impacted on similarities or differences between groups.

Table 23. Relationship of Dietary Factors to Selected Variables in Single-Parent Families

	Milk/Dairy	Vit. C	School Lunch #/3 days	Food Purch. Person	Educ.	Nutr. Know.	Vit. A	Mean # Meals #/3 days	School Breakfast #/3 days	Income	Food Preparation Person	Authoritarian Attitudes	Meat/Meat Substitutes	Breads/Cereals
Vitamin A	r 0.51 p 0.04	r 0.54 p 0.02	NS	r 0.52 p 0.03	NS	NS	r 1.00 p 0.00	NS	NS	NS	NS	NS	NS	NS
Mean # Meals per day	NS	r 0.53 p 0.03	NS	NS	r 0.54 p 0.02	NS	NS	r 1.00 p 0.00	NS	NS	NS	NS	NS	NS
School Breakfast - #/3 days	NS	NS	r 0.49 p 0.04	NS	NS	NS	NS	NS	r 1.00 p 0.00	NS	NS	NS	NS	NS
Income	NS	NS	NS	NS	r 0.59 p 0.01	NS	NS	NS	NS	r 1.00 p 0.00	NS	NS	NS	NS
Food Preparation Person	NS	NS	NS	r 0.57 p 0.02	NS	NS	NS	NS	NS	NS	r 1.00 p 0.00	NS	NS	NS
Authoritarian Attitudes	NS	NS	r -0.46 p 0.05	NS	NS	NS	NS	NS	NS	NS	NS	r 1.00 p 0.00	NS	NS
Meat/Meat Substitutes	NS	NS	NS	NS	r -0.50 p 0.04	NS	NS	NS	NS	NS	NS	NS	r 1.00 p 0.00	NS
Breads/Cereals	NS	NS	NS	NS	NS	r 0.64 p 0.006	NS	NS	NS	NS	NS	NS	NS	r 1.00 p 0.00
Milk/Dairy Products	r 1.00 p 0.00	NS	NS	NS	NS	NS								
Vitamin C	NS	r 1.00 p 0.00	NS	NS	NS	NS								
School Lunch #/3 days	NS	NS	r 1.00 p 0.00	NS	NS	NS								
Food Purchasing Person	NS	NS	NS	r 1.00 p 0.00	NS	NS								
Education	NS	NS	NS	NS	r 1.00 p 0.00	NS								
Nutrition Knowledge	NS	NS	NS	NS	NS	r 1.00 p 0.00								

Rejection or Acceptance of the Null Hypotheses

Ho1: There will be no difference in the food consumption of children aged six through eight years in single-parent and nuclear families, using a modified version of the Basic Four food groups for assessment.

The null hypothesis was accepted. The mean intake of milk and dairy products, meat and meat substitutes, vitamin A, vitamin C, miscellaneous fruits and vegetables and breads and cereals were not significantly different between children in single-parent and nuclear families ($p < 0.05$).

Ho2: There will be no difference in parental attitudes of single-parents with child custody and parents in nuclear families.

The null hypothesis was rejected. When parents in nuclear families were compared to the parents in single-parent families, the two groups were significantly different ($p < 0.01$) for the irritability vs. warmth factor of the PARI. Single-parent females were less warm in their attitudes towards child rearing than were parents from nuclear families. When mothers from nuclear families were compared to mothers in single-parent families, a significant difference was found between groups ($p < 0.02$) for the irritability vs. warmth factor. Single-parent mothers were less warm than nuclear mothers

in their attitudes towards child rearing. Overall, however, both family types presented warm, nonauthoritarian, accepting attitudes towards parenting.

Ho3: There will be no relationship between parental attitudes and food consumption in children aged six through eight in single-parent and in nuclear families.

The null hypothesis was accepted. Parental attitudes were not correlated with consumption of milk/dairy products, meat/meat substitutes, vitamin A and C rich fruits and vegetables and breads and cereals in children from single-parent and nuclear families ($p < 0.05$).

Ho4: There will be no difference in nutrition knowledge of chief parental caretakers in each household.

The null hypothesis was accepted. Out of 23 questions, single-parent and nuclear families each had a mean score of 18 correct. The mean scores correct between groups were not significantly different ($p < 0.05$).

Ho5: There will be no relationship between nutrition knowledge of chief parental caretakers and food consumption in children aged six through eight in nuclear or single-parent families.

The null hypothesis was rejected. In single-parent families, nutrition knowledge scores were positively

correlated with bread and cereal intake. In nuclear families, nutrition knowledge was negatively correlated with meat/meat substitute intake.

Ho6. There will be no relationships among income level, educational attainment and other selected demographic variables and food consumption in children aged six through eight in nuclear and single-parent families.

The null hypothesis was rejected. In nuclear families, selected variables such as educational attainment and income level were not correlated with Basic Four food group consumption ($p < 0.05$). However, in single-parent families, higher education levels were positively related to an increase in number of meals consumed each day ($p < 0.02$). School lunch consumption was positively correlated with school breakfast consumption ($p < 0.04$). Education levels were negatively correlated with meat intake ($p < 0.03$), and democratic acceptance was negatively correlated with number of school lunches consumed in a three day period ($p < 0.05$).

SUMMARY AND CONCLUSIONS

Sixty three nuclear families and 17 single-parent families were studied to determine if parental nutrition knowledge and parental attitudes, and the Basic Four food consumption of one randomly selected six to eight year old child per family were different. Nutrition knowledge, parental attitudes, income level, educational attainment, and selected demographic variables were studied in relationship to intake of a modified version of the Basic Four food groups in the selected children.

No differences were noted between intake of the Basic Four food groups or nutrition knowledge between groups. The mean correct score for nutrition knowledge in both groups was 18 out of a possible 23 correct, or 78.3% correct. Even though mean intake in the six to eight year old children in the two groups was not significantly different for consumption of meat/meat substitutes, milk/dairy products, vitamin A and C rich fruits and vegetables, miscellaneous fruits and vegetables and breads and cereals, approximately fifty percent or more of the children in each group received less than the recommended number of servings in each area except for breads and cereals. Approximately thirty percent of the children in both single-parent and nuclear families consumed less than the recommended number of servings

from the breads and cereal group. In nuclear families, 51.5% of the children also met their vitamin C rich fruits and vegetable requirement. Children in single-parent families consumed significantly more school breakfasts than did children in nuclear families ($p < 0.01$). Total number of snacks and meals, and number of school lunches consumed were not statistically different between groups ($p < 0.05$).

Nutrition knowledge was negatively correlated with meat/meat substitute intake in nuclear families and positively correlated with income level, education, warm parenting attitudes and democratic accepting parenting attitudes. In single-parent families, nutrition knowledge was positively correlated with bread and cereal intake. Parental attitudes were not correlated with Basic Four food intake in children in either family structure, although parental attitudes were different between groups. When single-parent families were compared to nuclear families, mothers were found to be less warm in single-parent families ($p < 0.02$). Parents in single-parent and nuclear families were found to exhibit warm, democratic accepting attitudes towards parenting in both groups.

Income, education level, and selected demographic variables were not related to Basic Four food consumption

in nuclear families. In single-parent families, educational attainment was positively correlated with mean number of meals consumed each day ($p < 0.01$) and negatively correlated with consumption of meat and meat substitutes ($p < 0.05$).

Nuclear families had a larger gross income than did single-parent families. Three quarters of the nuclear families studied earned a minimum of $20,000 per year; one quarter of the single-parents studied earned a minimum of $20,000 per year. Almost one half of the principal income earners in nuclear families had attained at least one graduate degree, while one of the mothers in single-parent families (5.9%) had completed a graduate degree. In nuclear families, food purchasing and preparation was predominantly a task allocated to women. Mothers in single-parent families also assumed the majority of the food purchasing and preparation responsibilities with very little assistance from friends or family.

In conclusion, six to eight year old children in single-parent and nuclear families consumed similar intakes of each of the Basic Four food groups regardless of the income, education level of the principal income earner or structure of their families. Nutrition knowledge was relatively high in parents from both

single-parent and nuclear structures, yet this knowledge did not appear to be put into practice. Approximately half of the children from both family types consumed less than the recommended number of servings in all food groups except breads and cereals, and in vitamin C sources in nuclear families. Single-parent mothers were significantly less warm than parents in nuclear families which had to relationship to Basic Four food group consumption of their children. Parents from both family types possessed nonauthoritarian attitudes towards parenting.

A limited number of statistically significant correlations or differences between groups were noted. This fact may in part be due to the inherent bias built into the sample selection of this study and similar studies using the same selection process (Grief, 1985b). Many of the respondents were members of Parents Without Partners, the Department of Social Services Parenting Education Program, and Catholic and Baptist church congregations in southwest Virginia, and thus reflected many of the characteristics of the population segments participating in these groups. Secondly, respondents were self selecting single-parent families or nuclear families. Actual differences between the groups and correlations between variables might be noted if

comparisons between respondents and nonrespondents to the cover letter, demographic questionnaire and PARI instruments in single-parent and nuclear families could be made.

Further research in the area of food intake in single-parent and nuclear families should consider 1) incorporation of male headed, single-parent households as a third comparison group using incentives to enhance participation, 2) recruitment of a larger and more diverse sample, 3) examination of nutrient quality of the diet in addition to Basic Four food group intake, 4) qualitative and quantitative assessment of snack food intake between groups, 5) comparative analysis of weekend vs. weekday food consumption, and 6) assessment of children in additional age categories.

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APPENDIX A

INFORMATION FORM

Dear Parent:

Please follow the instructions given for each question below. In two parent families, please have the principle income earner complete this segment of the questionnaire.

1. Your sex (circle number of your answer)
   1 Male 2 Female

2. Your present marital status (circle number)
   1 Never married 4 Separated
   2 Married 5 Widowed
   3 Divorced 6 Remarried after divorce

3. Length of time at your present marital status (circle number)
   1 Less than one year 4 Seven to nine years
   2 One to three years 5 Ten to thirteen years
   3 Four to six years 6 Greater than thirteen years

4. Number of children you have custody of in the following age categories for at least twenty days per month (if none, write "0" beside each age category).
   Number of children
   _____ Less than 6 years of age _____ Twelve to fourteen
   _____ Six to eight _____ Fifteen to seventeen
   _____ Nine to eleven _____ Eighteen and older

5. Please list the adults, age 18 or older, living in your household by sex, age and relationship to you (include self).
   Adults

   Sex Age Relationship to you

   _____

   _____

   _____

   _____

   _____

   _____

6. Person responsible for majority of food purchasing (include self if applicable; write sex, age and relationship to you of that person.

   Sex Age Relationship to you

   _____

7. Person responsible for majority of food preparation (include self if applicable; write sex, age and relationship to you of that person).

Sex	Age	Relationship to you

8. Are you presently (circle number)
   1 employed full time (40 hours/week or more)
   2 employed part time (less than 40 hours/week)
   3 unemployed
   4 retired
   5 full time homemaker

9. What was your approximate family income from all sources, before taxes, in 1985? (Include all sources, such as rental property, child support, gifts, pension, odd jobs, welfare, etc.) (circle number)
   1 Less than $5,000
   2 $5,000 to $9,999
   3 $10,000 to $14,999
   4 $15,000 to $19,999
   5 $20,000 to $24,999
   6 $25,000 to $29,999
   7 $30,000 to $35,000
   8 Greater than $35,000

10. What is the highest level of education that you have completed? (circle number)
   1 No formal education
   2 Some grade school
   3 Completed grade school
   4 Some high school
   5 Completed high school
   6 Some college
   7 Completed college
   8 Some graduate work
   9 One or more graduate degree(s)

In order to get more information about your child's food intake, I will need to contact you by telephone. Please put your first name only below, your telephone number, and the most convenient time of day for me to reach you.

FIRST NAME:

TELEPHONE NUMBER:

CONVENIENT TIME TO CALL:

PLEASE RETURN THIS YELLOW FORM WITH YOUR COMPUTER SHEET IN THE LARGE, POSTAGE PAID ENVELOPE. YOU MAY KEEP THE PARENT ATTITUDE RESEARCH INSTRUMENT AND COMPLEMENTARY PENCIL.

APPENDIX B

24-HOUR DIET RECALL*

NAME _____ NUMBER _____

AGE _____ SEX: M____ F____ SCHOOL BREAKFAST: YES____ NO____ LUNCH: YES____ NO____

DATE AND TIME OF INTERVIEW _____ LENGTH OF INTERVIEW _____

DATE OF RECALL _____ DAY OF THE WEEK OF RECALL (1-M,2-T,3-W,4-TH,5-F,6-SAT,7-SUN)____

RECORD ALL FOOD AND BEVERAGES CONSUMED IN THE PAST 24 HOURS, INCLUDING AMOUNTS:

Evaluate above recall by counting each serving of the following groups:

FOOD GROUP	CHILD 6-12	SERVINGS EATEN	SERVINGS LACKING
(First food named is the standard serving size)			
MILK - equivalents of 288 mg. Ca. & 8 gm. Protein 1 cup milk 2 slices cheese 1 3/4" cube cheese 3/4 cup custard 1 1/2 cup ice cream, pudding 1 cup yogurt 1 1/2 cup cottage cheese 1 (3 1/4 oz.) can sardines			
MEAT - equivalents of 14 gm. protein 2 oz. meat, fish, poultry 1 cup dried beans, peas 4 T. peanut butter 2 eggs 2 slices cheese 4 slices bologna 1/2 cup cottage cheese 6 oz. Tofu			
VEGETABLES & FRUIT Vitamin A equivalents 4000-50000 IU 1/2 cup greens 1/2 cup spinach 1/2 cup carrots 1/2 cup sweet potatoes 1/2 cup mixed vegetables 1 cup broccoli 1 cup apricots 1 cup cantaloupe (1/4 med.) 2 cups tomatoes Vitamin C equivalents of 60 mg. 1/2 cup orange juice, grapefruit juice 1/2 cup fortified pineapple juice 1 orange 1/2 cantaloupe 2 tomatoes 1/2 cup broccoli, brussel sprouts 1 cup cabbage Other fruit or vegetables 1 grapefruit 1 1/2 cup tomato juice			
BREAD & CEREAL - 70 kcal equivalents & 2 gm. Protein 1 slice bread 1/2 cup cooked cereal, grits 1/2 cup cooked rice 3/4-1 cup dry cereal 1/2 cup cooked macaroni, spaghetti, noodles 5 crackers cornbread 1 1/2" x 2" or 1 1/2" 4" pancake 1 biscuit 1/2 English muffin 1/2 frozen waffle 1/2 hot dog or hamburger bun			

If a fraction of the above amounts were eaten, count as that fraction of a serving.

Total Lacking _____

Alcoholic Beverages: Yes____ No____

Non-food items eaten (paint, clay, etc.): Yes____ No____ Specify: _____

Evaluation of diet: (Describe any nutrient deficiencies, inappropriate patterns, etc.)

_____

_____ (Date)

_____ (Interviewer)

*Adapted from the Bureau of Public Health Nutrition 24-Hour Diet Recall, WIC 329, WIC Certification-Part B.

APPENDIX C

NUTRITION KNOWLEDGE TEST

Some statements concerning nutrition are given below. Please indicate whether or not you think a statement is true or false. Circle "T" for true and "F" for false. After you have reached this decision indicate how certain you are about the answer. If you are very confident of your decision, circle "1"; if you are very doubtful, circle "5". Circle other numbers to indicate degrees of certainty between these extremes.

Please be sure to respond twice to every statement:	True or False	How sure are you? Very Confident			Pretty Sure	Very Doubtful
1. Protein-rich foods, such as meat, milk and eggs, provide liberal amounts of several nutrients needed for the growth of small children.	T F	1	2	3	4	5
2. It is better not to include orange juice and milk in the same meal because the orange juice causes the milk to curdle in the stomach.	T F	1	2	3	4	5
3. By the end of the first year babies should have learned to use a variety of foods besides milk because a one-sided diet may be inadequate for total growth and development.	T F	1	2	3	4	5
4. School age children need multiple vitamin pills every day to ensure good health.	T F	1	2	3	4	5
5. Chemicals now used to bleach flour are harmful to human beings.	T F	1	2	3	4	5
6. When children have enough food to satisfy their appetites their diets are certain to be nutritionally adequate.	T F	1	2	3	4	5
7. A good nutrtional practice is to eat a wide variety of types of foods from day to day.	T F	1	2	3	4	5
8. Citrus fruits include strawberries, raspberries, and blueberries.	T F	1	2	3	4	5
9. Skim milk contains about the same amounts of the body-building minerals and protein as whole milk.	T F	1	2	3	4	5
10. No reducing diet should contain bread or potatoes.	T F	1	2	3	4	5

Please be sure to respond twice to every statement:	True or False	How sure are you? Very Confident		Pretty Sure		Very Doubtful
11. Most fat children and adults have a glandular disturbance.	T F	1	2	3	4	5
12. Milk is a food needed mainly for infants and growing children.	T F	1	2	3	4	5
13. Apples are an excellent source of Vitamin C.	T F	1	2	3	4	5
14. Foods enriched with Vitamin D help to ensure the normal development of bones and the prevention of rickets.	T F	1	2	3	4	5
15. Gelatin, or "Jello" desserts are a good source of protein.	T F	1	2	3	4	5
16. All people should use a low-fat, low-cholesterol diet to prevent heart disease and strokes.	T F	1	2	3	4	5
17. Cheese is constipating.	T F	1	2	3	4	5
18. A glass of lemonade can be substituted for a glass of orange juice so far as the Vitamin C in the two products is concerned.	T F	1	2	3	4	5
19. Grape juice is an important source of nutrients which guard against anemia.	T F	1	2	3	4	5
20. The green leafy and yellow vegetables are stressed in daily food plans because they help to ensure meeting the Vitamin A needs of the individual.	T F	1	2	3	4	5
21. Healthy, active, young children require some concentrated sweets each day for energy needs.	T F	1	2	3	4	5
22. Pasteurization destroys much of the food value of milk.	T F	1	2	3	4	5
23. The "Basic Four" includes (1) Dairy Foods, (2) Meat & Eggs, (3) Breads and Cereals, (4) Fruits and Vegetables.	T F	1	2	3	4	5

APPENDIX D

PARENT ATTITUDES

Two-parent families: Both parents respond separately on the enclosed computer sheets.

Single-parent families: The parent with child custody for at least twenty days each month will respond on one of the enclosed computer sheets, and discard the other.

A child's diet may be affected by parenting attitudes. Read each of the statements below and then rate them as follows:

strongly agree	mildly agree	mildly disagree	strongly disagree
1	2	3	4

With the enclosed pencil, indicate your opinion by blackening the corresponding circle on the enclosed computer sheet. Blacken "1" if you strongly agree, "2" if you mildly agree, "3" if you mildly disagree and "4" if you strongly disagree.

There are no right or wrong answers, so answer according to your own opinion. It is very important to the study that all questions be answered. Many of the statements will seem alike, but all are necessary to show slight differences of opinion.

1. Children should be allowed to disagree with their parents if they feel their own ideas are better.
2. When a parent asks a child to do something the child should always be told why.
3. A child should be taught that there are many other people he will love and respect as much or more than his own parents.
4. Children should never learn things outside the home which make them doubt their parents' ideas.
5. Parents very often feel that they can't stand their children a moment longer.
6. There's no excuse wasting a lot of time explaining when you can get kids doing what you want by being a little clever.
7. Children have every right to question their parents' views.
8. A child should grow up convinced his parents always know what is the right thing to do.
9. Most parents can spend all day with the children and remain calm and even tempered.
10. Children should be encouraged to tell parents about it whenever they feel family rules are unreasonable.
11. Parents should adjust to the children some rather than always expecting the children to adjust to the parents.

strongly agree	mildly agree	mildly disagree	strongly disagree
1	2	3	4

12. Most children soon learn that their parents were mistaken in many of their ideas.

13. There is no excusing someone who upsets the confidence a child has in his parents' way of doing things.

14. The things children ask of a parent after a hard day's work are enough to make anyone lose his temper at times.

15. Often you have to fool children to get them to do what they should without a big fuss.

16. If a parent is wrong he should admit it to his child.

17. A child soon learns that there is no greater wisdom than that of his parents.

18. A parent should keep control of his temper even when children are demanding.

19. A child's ideas should be seriously considered in making family decisions.

20. In a well-run home children should have things their own way as often as the parents do.

21. Loyalty on the part of children to their parents is something that the parents should earn.

22. A parent should never be made to look wrong in a child's eyes.

23. It's natural for a parent to "blow his top" when children are selfish and demanding.

24. It's best to trick a child into doing something he doesn't want to do instead of having to argue with him.

25. A good parent can tolerate criticism of himself even when the children are around.

26. Loyalty to parents comes before anything else.

27. Raising children is an easy job.

28. When a child is in trouble he ought to know he won't be punished for talking about it with his parents.

29. As much as is reasonable a parent should try to treat a child as an equal.

30. A parent should not expect to be more highly esteemed than other worthy adults in their children's eyes.

strongly agree	mildly agree	mildly disagree	strongly disagree
1	2	3	4

31. It's best for the child if he never gets started wondering whether his parents' views are right.

32. It's a rare parent who can be even tempered with his children all day.

33. You have to fool children into doing many things because they wouldn't understand anyway.

34. When a child thinks his parent is wrong he should say so.

35. More parents should teach their children to have unquestioning loyalty to them.

36. Most parents never get to the point where they can't stand their children.

37. A child has a right to his own point of view and ought to be allowed to express it.

38. Children are too often asked to do all the compromising and adjustment and that is not fair.

39. Loyalty to parents is an overemphasized virtue.

40. The child should not question the thinking of his parents.

41. Raising children is a nerve-wracking job.

42. When a child is doing something he shouldn't, one of the best ways of handling it is to just get him interested in something else.

43. A child should be encouraged to look for answers to his questions from other people even if the answers contradict his parents.

44. A child should always love his parents above everything else.

45. There is no reason why a day with the children should be upsetting.

APPENDIX E

COLLEGE OF HUMAN RESOURCES

VIRGINIA POLYTECHNIC INSTITUTE AND STATE UNIVERSITY

Blacksburg, Virginia 24061

DEPARTMENT OF HUMAN NUTRITION AND FOODS

Dear Parent:

Nutrient intake is an important factor in the growth and development of children. In order to improve a child's diet during critical growth periods, different family characteristics need to be studied to determine what factors and parenting styles within a family affect food intake.

Your family is qualified to help increase knowledge about food intake in growing six to eight year old children and was selected from families in southwestern Virginia. The information that you provide concerning parenting styles and food consumption in your child will help us to better understand factors affecting a child's food intake and could lead to an overall improvement in health. Therefore, it is very important that the questionnaire be completed and returned.

You may be assured of complete confidentiality. Your first name and phone number will be used for follow-up telephone information on your child's diet and will never appear on the questionnaire or in any published results of the study.

The results of this research will be made available to educators, nutritionists and interested citizens. You may receive a summary of the results if you write your complete name and address on a blank sheet of paper and enclose it with the completed yellow information form and computer sheet in the postage paid envelope. Please do <u>not</u> put this information on the yellow form itself.

After the completion of this project one participant will be randomly selected to receive a ten dollar gift certificate for dinner at a local eating establishment. To be eligible for this gift certificate, please return the computer answer sheet and yellow form within seven days in the enclosed postage paid envelope.

This project is being conducted through the Department of Human Nutrition and Foods at Virginia Tech under the supervision of Dr. Mary Korslund (office telephone: (703) 961-7618). If any questions arise, I will be very happy to answer them. You may reach me in the evenings at (703) 989-6879.

Thank you for your assistance.

Sincerely,

Andrea Dillaway-Huber, M.S., R.D.

ADH/sks

Enclosure

APPENDIX F

Montgomery County Public Schools

200 Junkin Street, Post Office Box 29
Christiansburg, Virginia 24073 • Telephone 703-382-5100

January 15, 1987

Andrea Dillaway-Huber
Alleghany Health District
Box 1144
Salem, VA 24153

Dear Ms. Dillaway-Huber:

Thank you for sending information about the survey you wish to conduct concerning nutrition of students in single- and dual-parent homes.

Since you want to work with first and second graders, I have given the information to Dr. Bruce Johnson, Director of Elementary Education, for his review. I am sure you will hear from him soon.

Sincerely,

Claire G. Cole, Ed.D.
Acting Director of Secondary Education

cc: Bruce Johnson

TELEPHONE 703-382-5100

MONTGOMERY
COUNTY PUBLIC SCHOOLS
200 JUNKIN STREET, P.O. BOX 29 CHRISTIANSBURG, VIRGINIA 24073

March 26, 1987

Andrea Dillaway-Huber, M.S., R.D.
Virginia Department of Health
5129-N Overland Drive
Roanoke, Virginia 24014

Dear Ms. Dillaway-Huber:

Your request for permission to conduct a study on parenting attitudes and nutrient intake in single-parent families has been given careful consideration and approved. We understand that the study will be conducted as follows:

1. a packet consisting of a questionnaire, a pencil, stamped, addressed envelope and letter explaining the study will be distributed to all 6-8 year-old students as they leave the classroom at the end of the day to take home to their parents;

2. all contact with parents and children concerning this project will be through your office;

3. there will be minimal interruption to the school routine and intrusion upon instructional time and no assistance from teachers or other school personnel will be required after the initial distribution of packets;

4. confidentiality of students and parents will be maintained.

If you have any questions, please contact Dr. L. Bruce Johnson, Director of Elementary Education, at 382-5107. We look forward to receiving a copy of the results of this study.

Best wishes for a most successful project!

Sincerely,

James E. Moye
Superintendent of Schools

JEM/jwg

cc: Dr. L. Bruce Johnson
Director of Elementary Education

Dr. Claire Cole
Acting Director of Secondary Education

Principals

APPENDIX G
BASIC FOUR FOOD GROUPS FOR 6-12 YR. OLD CHILDREN*

Food Group	Servings/day	Serving Size
Milk and Cheese (1 oz. cheese = 1 cup milk)	4	3/4 - 1 c.
Meat/Meat Substitute	3+ total	
Eggs		1
Lean meat, fish, poultry, legumes		2 - 4 oz.
Peanut Butter		2 - 3 T.
Fruits and Vegetables	4+ total	
Vit. C source	1+	1 med. orange or equiv.
Vit. A source	1+	1/4 - 1/3 c.
Miscellaneous fruits and vegetables	2	1 med. piece
Breads and Cereals	4+ total	
breads, buns, pizza		1 - 2 slices
ready-to-eat cereals		1 oz.
cooked grains		1/2 - 3/4 c.

*Adapted from:
Whitney, E.N., and Hamilton, E.M.N. (1984)
and
Alford, B.B. and Bogle, M.L. (1982)

APPENDIX H

QUESTION NUMBERS ASSOCIATED WITH EACH PARI SCALE

SCALES

Questions 1, 10, 19, 28, 37 are from Encouraging Verbalization
Questions 2, 11, 20, 29, 38 are from Equalitarianism
Questions 3, 12, 21, 30, 39 are from Reversed Deification
Questions 4, 13, 22, 31, 40 are from Excluding Outside Influences
Questions 5, 14, 23, 32, 41 are from Irritability
Questions 6, 15, 24, 33, 42 are from Deception (filler)
Questions 7, 16, 25, 34, 43 are from Reversed Excluding Outside Influences
Questions 8, 17, 26, 35, 44 are from Deification
Questions 9, 18, 27, 36, 45 are from Reversed Irritability

*Taken from:
Cross, H.J. and Kawash, G.F. (1968)

The vita has been removed from the scanned document