

**THE IMPACT OF WORK, CHILDCARE AND FAMILY
VARIABLES ON THE DIET QUALITY AND DIET DIVERSITY
OF PRESCHOOLERS IN DUAL-EARNER FAMILIES
IN WINNIPEG, MANITOBA**

BY

VERMARAN RENEE LORNA EXTAVOUR

A Thesis

**Submitted to the Faculty of Graduate Studies
In Partial Fulfillment of the Requirements
For the Degree of**

MASTER OF SCIENCE

**Department of Human Nutritional Sciences
University of Manitoba
Winnipeg, Manitoba**

© May 2003

**THE UNIVERSITY OF MANITOBA
FACULTY OF GRADUATE STUDIES**

COPYRIGHT PERMISSION

**THE IMPACT OF WORK, CHILDCARE AND FAMILY
VARIABLES ON THE DIET QUALITY AND DIET DIVERSITY
OF PRESCHOOLERS IN DUAL-EARNER FAMILIES
IN WINNIPEG, MANITOBA**

By

Vermaran Renee Lorna Extavour

A Thesis/Practicum submitted to the Faculty of Graduate Studies of The University of
Manitoba in partial fulfillment of the requirement of the degree

of

Master of Science

Department of Human Nutritional Sciences
University of Manitoba
Winnipeg, Manitoba

(c) 2003

Permission has been granted to the Library of the University of Manitoba to lend or sell copies of this thesis/practicum, to the National Library of Canada to microfilm this thesis and to lend or sell copies of the film, and to University Microfilms Inc. to publish an abstract of this thesis/practicum.

This reproduction or copy of this thesis has been made available by authority of the copyright owner solely for the purpose of private study and research, and may only be reproduced and copied as permitted by copyright laws or with express written authorization from the copyright owner.

ACKNOWLEDGEMENTS

I would like to thank my research committee for their guidance and encouragement to complete my thesis: Dr. James Friel, Dr. Karen Duncan, and Lynda Corby.

My gratitude is extended to Marian Campbell for her assistance with my research.

My gratitude is also extended to the International Council for Canadian Studies for partial funding of the research

Thanks also go to Dennis Murphy for his statistical advice.

A special thank you to my Winnipeg family and friends for their continued emotional and financial support over the last few years. Above all I thank my family and friends in Trinidad and Tobago for their continued support throughout the years and for their prayers and guidance, which helped to strengthen all aspects of my life.

TABLE OF CONTENTS

	Page No.
1.0 Introduction	1
2.0 Literature Review	
2.1 Human Development Theory	4
2.2 Nutrient Intake of Preschoolers	9
2.3 Review of a Related Study	11
2.4 Paid Work Setting	13
2.4.1 Paid Work Time	15
2.4.2 Paid Work Schedule	15
2.4.3 Paid Work Schedule Flexibility	18
2.5 Childcare Setting	19
2.6 Family Setting	21
2.7 Summary	24
2.8 Dietary Assessment Measures	28
2.8.1 Diet Quality	30
2.8.2 Diet Diversity	35
2.9 Research Questions, Hypothesis and Rationale	47
3.0 Methodology	
3.1 Baseline Study	51
3.1.1 Subjects	51
3.1.2 Research Methods	51
3.1.3 Response Rate	52
3.1.4 Results and Limitations	53
3.2 Measures for the Present Study	54
3.2.1 Descriptive Variables	54
3.2.2 Analytical Variables	55
3.2.2.1 Independent Variables	55
3.2.2.2 Dependent Variables	57
3.3 Analysis Plan	73
3.3.1 Univariate Analysis	73
3.3.2 Bivariate Analysis	73
3.3.3 Multivariate Analysis	74
4.0 Results	
4.1 Recoding Data	79
4.2 Univariate Analysis	82
4.2.1 Work Setting	82
4.2.2 Childcare Setting	94
4.2.3 Family Setting	97
4.2.4 Diet Quality	100
4.2.4.1 Nutrient Intake	100

4.1.4.2 Prevalence of Nutrient Inadequacy	103
4.2.4.3 Percentage of Nutrient Intake from meals and snacks	103
4.2.5 Diet Diversity	110
4.3 Bivariate Analysis	113
4.3.1 Re-catergorising variables	113
4.3.2 Work Schedule Flexibility	118
4.3.3 Bivariate Results	120
4.3.3.1 Interrelationships among independent variables	120
4.3.3.2 Relationships among dependent variables	126
4.3.3.3 Diet Quality	126
4.3.3.4 Diet Diversity	129
4.4 Multivariate Analysis	132
4.4.1 Testing Assumptions	132
4.4.1.1 Residual Analysis	133
4.4.2 Diet Quality	134
4.4.2.1 Relative influence of mothers' work, child care and family setting variables on diet quality	134
4.4.2.2 Relative influence of family-work, child care and family setting variables and diet quality	137
4.4.3 Diet Diversity	140
4.4.3.1 Relative influence of mothers' work, child care and family setting variables on diet diversity	140
5.4.2.2 Relative influence of family-work, child care and family setting variables on diet diversity	143
5.0 Discussion of Results	146
5.1 Discussion of univariate analysis	146
5.1.1 Work Setting	146
5.1.2 Child Care Setting	147
5.1.3 Family Setting	147
5.2 Discussion of bivariate analysis	148
5.2.1 Diet Quality	148
5.2.1.1 Research question 1	148
5.2.1.2 Research question 2	149
5.2.2 Diet Diversity	151
5.2.2.1 Research question 1	151
5.2.2.1 Research question 2	152
5.3 Discussion of multivariate analysis	153
5.3.1 Diet Quality	153
5.3.1.1 Relative effect of family, childcare and mothers' work setting variables and diet quality	153
5.3.1.2 Relative effect of family, child care and family-work setting variables and diet quality	154
5.3.2 Diet Diversity	155
5.3.2.1 Relative effect of family, childcare and mothers' work setting variables on diet diversity	155

5.3.2.2 Relative effect of, family childcare and family-work setting variables on diet diversity	156
6.0 Conclusion and Limitations	158
6.1 Conclusion	158
6.2 Limitations	162
7.0 Implications for Future Research	164
References	165

LIST OF APPENDICES

A Telephone questionnaire to parents of selected children	173
B How To Keep a weighted food diary of your child's intake	188
C Diet diversity coding template	196
D List of discrete foods	199

LIST OF TABLES

Table No.	Table Name	Page No.
1.	Health Canada's Food Groups and the Recommended Number of Servings for Preschoolers	9
2.	Nutrient Recommendations	59
3.	Criteria for defining foods	65
4.	Recommended Serving Sizes	69
5.	Serving Sizes to be used as 'cut' points for foods	71
6.	Days of the Week Worked by Mothers and Fathers	83
7.	Hours of the Week Worked by Mothers and Fathers	83
8.	Number of Mothers and Fathers Working Standard vs. Non-standard Work Schedules	84
9.	Combined Family Work Schedule	86
10.	The Ability of Mothers and Fathers to Change Their Hours Worked Permanently	86
11.	The Ability of the Family to Change Their Hours Worked Permanently	87
12.	The Ability of Mothers and Fathers to Change Their Days Worked Permanently	89
13.	The Ability of the Family to Change Their Days Worked Permanently	89
14.	The Ability of Mothers and Fathers to Take Time Off During Their Workday for Personal or Family Matters	90
15.	The Ability Of The Family to Take Time Off During Their Workday for Personal or Family Matters	90
16.	Summated Three Item Score for Work Schedule Flexibility ¹ of Mothers and Fathers	92
17.	Summated Three Item Score for Family Work Schedule Flexibility	92
18.	Distribution of Mothers' and Fathers' Occupations	93
19.	The Number of the Different Types of Childcare Arrangements Used by Parents	95
20.	The Number of Families Using More Than One Type of Childcare	95
21.	Parent's Satisfaction with the Childcare Arrangement	96
22.	The Meals and Snacks Parents Reported That Were Usually, Sometimes or Never Eaten With Caregivers	96
23.	Distribution of Mothers' Education	98
24.	Distribution of Fathers' Education	98
25.	Distribution of Family Income	99
26.	Three-day Mean Nutrient Intake (standard deviation)	101
27.	Three-day Mean Nutrient Density (standard deviation)	102
28.	Prevalence of nutrient intake above and below Estimated Average Requirement (EAR)	104
29.	Percentage of the mean three-day nutrient intake from meals and snacks	105
30.	Percentage of the mean three-day nutrient intake from various meals	107
31.	Percentage of the mean three-day nutrient intake from various snacks	108

32.	Percentage energy and mean energy intake (\pm standard deviation) from protein, fat and carbohydrate in meals and snacks	109
33.	Foods eaten by at least 20% of preschoolers	111
34.	Mothers' work setting variables	114
35.	Fathers' work setting variables	115
36.	Family-work setting variables	116
37.	Child care setting variables	116
38.	Mothers' education	116
39.	Fathers' education	117
40.	Family Income (Categorical distribution)	117
41.	Spearman's correlation results for mothers' work schedule flexibility score	119
42.	Spearman's correlation results for Family work schedule flexibility	119
43.	Significant relationships between mothers' work setting, child care setting and family setting	122
44.	Significant relationships between family work setting, child care setting and family setting variables	125
45.	Significant relationships between mothers' work setting, child care setting family setting variables and diet quality diversity	128
46.	Significant relationships between family work setting variables and diet quality and diet diversity	131
47.	Analysis of Variance Results for main effect of mothers' work, child care and family variables and diet quality	135
48.	Analysis of Variance Results for main and interaction effects of mothers' work, child care and family variables and diet quality	136
49.	Analysis of Variance for main effect of family-work, child care and family variables on diet quality	138
50.	Analysis of Variance for main and interaction effects of family-work, child care and family variables on diet quality	139
51.	Analysis of Variance for main effect of mothers' work, child care and family variables on diet diversity	141
52.	Analysis of Variance for main and interaction effects of mothers' work, child care and family variables on diet diversity	142
53.	Analysis of Variance for main effect of family-work, child care and family variables on diet diversity	144
54.	Analysis of Variance for main and interaction effects of family-work, child care and family variables on diet diversity	145

ABSTRACT

Over the last 40 years there has been an increase in the number of women entering Canada's labour force. With the increase in participation it is not clear how women working outside of the home affects the diet of preschoolers in dual earner families. This study examined the effects of mothers' work, child-care and family variables on the diet quality and diversity of preschoolers in dual-earner families. The effects of the combined mothers' and fathers' work variables on the diet of preschoolers were also examined. Subjects were 146 preschoolers (24-47 months) in dual earner families living in Winnipeg. Parents and caregivers kept an estimated 3-day food record for non-consecutive days. Work variables were work time, work schedule, and work schedule flexibility. I also included the licensing of the child-care facility as a characteristic of the child-care setting. Mothers' education and family income were used as the characteristics of the family setting. Diet quality was measured using a mean adequacy ratio score, while diet diversity was measured by determining the presence of different foods. Mothers' work time and mothers' education had significant relationships with diet quality ($r = -0.2$, $p < 0.05$ and $\chi^2 = 6.78$, $p < 0.03$, respectively). Mothers' work schedule flexibility was significantly related to diet diversity ($\chi^2 = 2.94$; $p < 0.05$). Family work time and family work schedule had significant relationships with diet quality ($r = -0.2$; $p < 0.05$ and $\chi^2 = 7.92$; $p < 0.05$, respectively). Family work schedule was significantly related to the preschoolers' diet diversity ($\chi^2 = 5.43$; $p < 0.10$). The combined effect of work, child-care and family variables did not indicate any significant relationships with diet quality and diversity. Mothers' work variables and family work variables have an effect on diet quality and diversity of preschoolers. The child-care and family settings also have an effect on the diet of the preschooler. Further research is needed to fully

explore how other variables of mothers' work, and the combined family work settings how they may affect the diet of preschoolers. With mothers' increasing their presence in the labour force, further research is needed to fully explore other characteristics such as work place stress, to determine their effect of the diet of preschoolers. The results of such research have implications for nutrition education programs for parents as well as for the design of work place policies.

1.0 INTRODUCTION

In today's world there are several changes taking place with regard to the food habits of most populations. The ability to secure food and ensure health for the population has been a major issue for many governments in the world. A part of this population is comprised of preschoolers, whose diets are influenced by both parents and communities at large. The family provides the near environment in which the decisions relating to the health and nutrition of the child are made. The influence of parents on food patterns is critical to the development of the food habits of the preschooler (Sigman-Grant, 1992).

Within the last 30 years maternal employment has increased significantly, not only in developed countries but also in developing nations. Results from the 1990 General Social Survey (Statistics Canada, 1995) have indicated that, regardless of age, dual-earner families have increased significantly from 1974 to 1994. Families are no longer depending on the single incomes of fathers, but also relying on contributions made by mothers from paid employment outside of the home. The employed mother has become a significant social and economic presence in society (Johnson, Crouter, & Smicklas-Wright, 1993). Statistics Canada (1995) has also reported that women with children under six years of age are the fastest growing group to entering the workforce. Fast, Frederick, Zukewich and Franke (2001) have reported that parents with young children are still entering the work force. These results came from the 1998 General Social Survey.

With the increase in maternal employment, the daily schedules of mothers with preschool children has become hectic and they experience, what is termed by Johnson et

al. (1993) as "time-famine." This famine is seen as a decrease in time spent in household duties including meal preparation as supported by research conducted by Ortiz MacDonald, Ackerman, and Goebel (1981). Results from the 1998 General Social Survey reported by Fast et al. (2001) indicated that although mothers have increased their work time in paid employment they spend a considerable amount of time in household work, such cleaning and child-care.

With mothers working outside of the home and having less time available to do household activities, time spent on activities such as food purchasing, menu planning and meal preparation decreases. Women are faced with balancing their roles as mothers along with their work place roles. Feelings of stress and strain from the work place may influence the decisions made at home with respect to menu planning, and food preparation, as well as child feeding practices. The diets of children, whose parents work long hours, have non-standard work schedules and who have little control over their work schedule, may have lower diversity and quality. Parents are also challenged with the problem of finding childcare facilities that will provide adequately for the preschooler while parents work. The quality of care received may be dependent on the type of arrangement that is used (i.e., grouped versus ungrouped childcare) and whether it is a licensed or unlicensed facility as suggested by other researchers (Campbell, 1988; Caliendo & Sanjur, 1978).

This present research examined the aspects of work, childcare and family settings that influenced the diet of the preschool child. The effects of work time, work schedule and work schedule flexibility were considered under work setting. In terms of childcare, the effects of the type of facility, and the childcare arrangements used by parents were

included. Another setting that was considered in the study is the family itself, where family income and parental level of educational attainment were addressed. The overall dietary status of the preschooler was assessed using dietary diversity and diet quality measures of the diet. I applied the theory of Urie Bronfenbrenner to determine whether the interrelationships of the work, child-care and family settings have an effect on the diet of preschoolers. With mothers' increased participation in the labor force, I examined the effects of the mothers' work setting as well as the combined family setting (i.e. mothers and fathers work setting characteristics).

2.0 LITERATURE REVIEW

2.1 A Theory of Human Development

Urie Bronfenbrenner, a psychologist who studied human development, developed an ecological theory of human development based on theories put forward by Lewin (1935). Bronfenbrenner's theory (1979) indicates that in order to fully understand human development, the researcher needs to consider relationships that occur in the immediate environment of a developing individual, as well as relationships that occur in other social environments. The ecological environment is viewed as a "set of nested structures, each inside the next" (pp. 3).

This ecological theory addresses three main aspects of human development. Firstly, his focus is on the individual's immediate environment and the social interactions that may occur in this environment. Secondly, he believes that the relationships between different settings and environments are important to development. Thirdly, Bronfenbrenner sees the environments that the individual may not experience as having a profound effect on his or her development (Bronfenbrenner, 1979; Tudge Shanahan, & Valsiner, 1997).

Bronfenbrenner's theory focused on the set of processes through which aspects of the person and the environment interact to produce constancy and change in the characteristics of the person over the his or her life span (Bronfenbrenner, 1986, 1994). The developing individual is at the center of an interconnected set of contexts or settings (termed microsystems and mesosystems). The contexts or settings that the individual does not experience also have an indirect effect on the individual's development with the

effects being mediated by persons with whom the individual comes into direct contact. These settings are termed exosystems and macrosystems.

The microsystem is defined as “a pattern of activities, roles and interpersonal relations experienced by the developing person in a given setting with particular physical and material characteristics” (Bronfenbrenner, 1979). The setting in the microsystem is the place where the individual can have face to face interactions – at home, daycare center, school and so on. The activities, roles and interpersonal relationships that occur constitute the elements of the microsystem. The effects of the microsystem relate to the activities, roles interpersonal relationships. The individual has the opportunity to partake in activities that will allow him/her to observe the roles taken by other participants in the same setting, as well as to engage in those activities. Interpersonal relationships with other individuals in this setting are also developed. These relationships are affected by the characteristics and personalities of the interacting individuals, as well as their belief systems and so on, all of which have a dynamic flux over the course of development. It is also recognized that an individual may exist in more than one microsystem at the same time. For example home, daycare centers, school, and church are all microsystems (Bronfenbrenner, 1979, Tudge et al. 1997).

The mesosystem consists of the relationships and activities that occur across the microsystems. Bronfenbrenner (1979) defines the mesoystem as “the interrelations among two or more settings in which the developing person actively participates (such as, for a child the relations among home, school, and neighborhood peer group; for an adult, among family, work, and social life)” (p.p. 25). Even though the home is the main microsystem setting where development takes place, it is only one of many settings in

which development may take place. Hence, the activities of each microsystem setting do not operate independently of each other. Some individuals from one microsystem setting are also present in another microsystem setting for the developing individual. As a result the activities and the interpersonal relations that occur across the different microsystem settings form the mesosystem.

The exosystem is defined as “one or more setting that do not involve the developing person as an active participant, but in which events occur that affect, or are affected by, what happens in the setting containing the developing person” (Bronfenbrenner, 1979, p.p. 26). Therefore, the exosystem comprises of the settings that a person does not experience but that have an effect on development. For example, the exosystems for a young child might include the parents’ workplace, or school classes attended by an older sibling. The psychological development of the person is affected not only by what happens in the immediate environments but also what happens in other environments that the person does not experience.

Next in the hierarchy of systems is the macrosystem. The macrosystem is defined as “consistencies in the form and content of lower-order systems (micro-, meso-, and exo-) that exist, at the level of the subculture or the culture as a whole, along with any belief system or ideology underlying such consistencies” (Bronfenbrenner, 1979, p.p. 26). The macrosystem, therefore, is formed within a particular society or social group. The structure and substance of the microsystem, mesosystem and exosystem tend to be similar and function in similar ways. Conversely, between different social groups these systems may vary markedly. Hence by analyzing and comparing the micro-, meso and exo- systems, which characterize different social classes, ethnic, religious and cultural

groups, it is possible to describe the systems and to distinguish the ecological properties that affect human development. Bronfenbrenner's theory tries to answer questions related to how these entities are related to development and how they are related to each other.

The last system that Bronfenbrenner formulated was the chronosystem. This system is defined as "effects related to changes in different settings over time" (Bronfenbrenner, 1986). The effects of changes or stability in the various settings have both a direct and an indirect effect on the individual forms the chronosystem. Changes in the nature and characteristics of the person are also included in this system. This system shows that the developing person changes individually and that he or she does so in ever changing settings including changes within the family setting and changes at the cultural level. This system takes into account changes over time not only within the person but also in the environment and in the relationship between the environment and the individual.

Human development, according to Bronfenbrenner's theory, is an expansion of Lewin's (1935) concept, which states that behavior (B) is a function of person (P) and environment (E), that is, $B=f(PE)$, where Lewin's theory focuses on an outcome at a given point in time. Bronfenbrenner's expansion on this concept suggests that development (D) is a function of person (P) and environment (E), $D =f(PE)$, where the outcome is the ongoing development of the individual (Bronfenbrenner, 1979, 1986; Tudge et al., 1997). The process of development is at the core of Bronfenbrenner's theory with activity between the developing individual and social partners being the key to understanding both stability and change. Interpersonal interactions are most fully

understood by considering them in broader historical, cultural and social environments, and the relationships within and between the environments are viewed as synergistic (Tudge et al., 1997).

The child takes part in one set of activities at home, another set of activities with peers, another in church, and another at school. The interpersonal relationships are the same within each microsystem but different between microsystems. Sometimes there are consistencies in activities, interpersonal relationships, or both in various microsystems in which the child lives. In other cases the links may be less consistent. There are settings in which the child does not experience but these settings nevertheless indirectly exert an effect on the child's development. Settings such as parents' work place, and experiences parents have at work often influence the activities and interpersonal relationships that the child may experience (Tudge, et al., 1997).

The systems that form Bronfenbrenner's (1979, 1986) theory are conceptualized as interdependent and interactive. Based on Bronfenbrenner's ecological theory of human development, studies of the effect of both parents working on child nutrition should consider not only the family and childcare settings, but also the work setting of the parents, and the interactions among these settings.

Having identified the environments that affect children, it is now possible to examine what aspects of these environments may influence the eating habits of the preschooler. In the following review the impact of work, childcare and family settings on the diet of the child will be addressed. Specifically I address work time, work schedule and work schedule flexibility as variables representing the indirect effect of the work setting. Licensing of child-care facility, type of childcare and parents' satisfaction with

the child-care facility are considered as part of the immediate environment. Another immediate environment is the family environment and variables include parents' education and family income.

2.2 Nutrient Intake of Preschoolers

Canada's Food Guide to Healthy Eating: Focus on Preschoolers (Health Canada, 1995) recommends that preschoolers eat foods from each of the four food groups. The requirements suggested by Health Canada are summarized in Table 1.

Table 1. Health Canada's Food Groups And The Recommended Number Of Servings For Preschoolers

Food Group	Recommended Number of Servings
Grain Products	5-12
Vegetables and Fruit	5-10
Milk Products	2-3
Meat and Alternates	2-3

Currently little research is available on the food patterns of preschoolers. Leung, et al. (1984) conducted a study looking at the nutrient intake of preschoolers in the Toronto and other regions of Ontario whose age range was 3.6 to 4 years. The majority of the families were two-parent, married couple families. The mean family income was \$30,000, which was close to the average income of families in the province. The eating habits of the children were assessed using a four-day diary which parents were required to keep. The results of the study indicated that preschoolers were consuming foods from all of the food

groups and that the recommended nutrient intakes were met and exceeded for some nutrients. Snacks, which were consumed at least once per day, have been recognized as an important source of energy for these children.

Other researchers have also focused on the nutrient intake of preschoolers but not on the type of foods consumed (McNicol, et al., 1989, McNicol, et al., 1991). In contrast, Leaman and Evers (1997) addressed the intake of preschoolers in low-income communities in Ontario in which the foods were grouped based on the actual foods consumed and not on nutrient content or the food groups. This type of analysis allowed researchers to better understand the types of food commonly consumed by preschoolers. Over 80% of the participants in the study by Leaman and Evers (1997) were below the poverty line, while half of parents interviewed were born outside of Canada. It was found that in this study the food consumed by preschoolers compared favorably with the requirements stated in the food guide for Canada.

The study by Leaman and Evers (1997) was carried out using preschoolers aged 4 – 5 years who were enrolled in a project entitled Better Beginnings, Better Futures. Food intake was assessed using a 24-hour recall. The food records were then analyzed and the foods classified into seventeen groups based on the foods that were reported. The results of this study indicate that 92% of the children consumed fluid milk, 87% breads, 81% sugars, 78% fruit, 74% vegetables, 64% fats, 63% cereals and 63% meats, 56% desserts, and 50% grains. The following groups of foods were consumed by at least one fifth of the children – mixed dishes (47%), processed meats (40%), legumes (32%), condiments (29%), cheese (29%), eggs (24%), snacks (22%), and milk desserts (21%).

This study emphasized the need to address the intake of preschoolers based not only on the nutrient intake but also on the actual foods consumed. Since food provides many different nutrients a measure of the different foods eaten may be needed to be developed.

2.3 Review Of A Related Study

In this section I will review a study that looked at the same settings as proposed in the present study and how these settings affect the diet of preschoolers. This study was based on the theory Bronfenbrenner (1979) offered for human development. Campbell and Sanjur (1992) studied the characteristics of work, childcare and family environments that may influence the diet of the preschooler. The main objective of the study was to examine the impact of maternal employment on the diets of preschool children with single parent employed mothers. Their research addressed questions of under what conditions (work, child care, home) a mother's work affects the diet of preschool children and by what process do these affects occur?

The participants were 30 single employed mothers who had preschool children. The settings as outlined by Bronfenbrenner (1979, 1986) that were used were two immediate settings of the child, family and child care, and one outer setting, mother's work, which the child may not necessarily experience directly, but which may have an indirect effect on the child's development. The role strain theory offered by Goode (1960) was used to determine the process by which job strain experienced by the mother influenced the diet of the preschooler. The child-feeding practices adopted by the mother were also considered. The characteristics of work, childcare, and family

environments were analyzed for their effects on the child feeding practices, diet quality, and diet diversity.

To assess the diet of the child, diet diversity and diet quality measures were determined. Diet diversity measured the number of different foods consumed using a three-day mean food intake record as suggested by Randall, Nichman, and Contant (1985). Diet quality was measured using a food-based diet quality score, which was based on a three-day mean intake of foods from the food groups. The score was calculated using a technique adopted by Guthrie and Sheer (1981) and Caliendo, Sanjur, Wright, and Cummings (1977).

The study showed that the characteristics of the work role had significant relationships to job/family strain. After controlling for work, childcare and family characteristics, higher strain was associated with more hours spent working, less positive attitudes toward work, and decreased levels of work satisfaction. The family variables that appeared to be significantly associated with strain were the number of children present in the home and income adequacy. It was apparent that strain increased as the number of children increased. No childcare variables were found to influence the strain.

Family characteristics were important predictors of child-feeding practices. Mother's age was found to be the most important predictor of practices. Role strain was not a significant predictor of practices as was expected, but results indicated that as strain decreased, child-feeding practices improved.

High diet diversity scores were associated with high-income position, more childcare arrangements since birth, and licensed childcare facilities. Role strain and child feeding practices did not appear to mediate the effect of the work, childcare and family

variables on diet diversity. Child-feeding practices however, were a significant predictor of diet diversity whereby high diet diversity scores were associated with improved practices. Furthermore, several of the work, childcare, and family characteristics that predicted diet diversity also were predictors of diet quality. Diet diversity, when added to the model for diet quality, had a mediating effect on some of these characteristics. The effects of paid work schedule control, work schedule, number of child care arrangements since birth, use of licensed vs. unlicensed childcare, number of children in the home, and child feeding practices all had reduced effects after diet diversity was introduced into the equation.

It is clear from these results that diet diversity plays an important role in determining the diet quality of the child. This variable appears to be a key influence on work, childcare, and family variables on diet quality. The present study will look at the characteristics of paid work, childcare and the family environment in dual-parent families as opposed to single-parent families. The diet diversity and diet quality of preschoolers' diets will be assessed based on the results of this study. The impact of role strain and child-feeding practices will be excluded.

2.4 Paid Work Setting

For the last 30 years more women have been entering the labor force to pursue work outside of the home. Human Resources Development Canada (HRDC) (1994) reported that 60% of Canadian families were dual-earner families in 1991 compared with 40% in 1971. Furthermore over 60% of mothers with children under the age of 6 worked outside of the home in 1993. By 1990, only 32% of families with children under the age