Parental perceptions of childhood weight status in preschool children

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PARENTAL PERCEPTIONS OF CHILDHOOD

WEIGHT STATUS IN PRESCHOOL CHILDREN

by

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Bachelor of Science in Nursing
University of Saskatchewan
1995

A thesis submitted in partial fulfillment of the requirements for the

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ABSTRACT

Parental Perceptions of Childhood Weight Status in Preschool Children

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The purpose of this descriptive study was to describe parental perceptions of their preschool child’s weight status. Pender’s Revised Health Promotion Model was used to guide this study. A convenience sample of 275 parents, who had a child between the age of 2-5 years, was obtained from Women, Infant’s and Children (WIC) clinics in a Southwestern city, after informed consent was obtained. The sample had a high number of Hispanics (80%) compared to non-Hispanics (20%). It was found that overall parents perceive their child’s weight accurately. No significance was found between the ethnicity, education or age of the parents and the accuracy of the parental perception of their child’s weight category. Hispanic children were more often overweight (11.2%) compared to 9.1% of non-Hispanic children (BMI >95th percentile), but Hispanic parents perceived these children to be underweight more often (11.6%) than non-Hispanic parents (7.3%). The significant number of overweight children in this study reinforces the need for culturally-sensitive education for parents from health professionals, to decrease the incidence of childhood obesity.
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CHAPTER 1

INTRODUCTION

Introduction

According to Schonfeld-Warden and Warden (1997), childhood obesity has increased over 50% since 1976 across the United States. Research has shown that parents have a large influence on the incidence of childhood obesity whereby obesity can increase by more than three times when one or more parents are obese compared to children whose parents are not obese (Maes, Neale, & Eaves, 1997; Whitaker, Wright, Pepe, Seidal, & Dietz, 1997). This phenomenon could be attributed to shared environmental factors or inherited genes within families (Whitaker, et al., 1997). There has been little research to determine parental perceptions regarding their own child’s obesity.

Healthy People 2010 discusses the difficulty in defining obesity, especially for children. The definition of obesity should be based on the amount of excess body fat at which health risks to individuals begin to increase and no such definition exists. Most current research supports the use of body mass index (BMI) which is adjusted for height and gender, and is valid across different racial and ethnic groups. Defining overweight and obesity in children becomes even more complicated because body fat deposition changes with sexual maturity, therefore measures of body fat and body weight are
difficult to interpret in children and adolescents as they grow. Underweight is defined as a BMI for age-gender below the 5th percentile and was found in 8 percent of low income children under the age of 5 years (U.S. Department of Health and Human Services, 2000). For the purposes of this study, obesity was defined according to the definition in Healthy People 2010 with overweight and obesity in children and adolescents as at or above the gender- and age-specific 95th percentile of body mass index (BMI). This is based on the revised Center for Disease Control (CDC) Growth Charts for the United States (U.S. Department of Health and Human Services, 2000). Further support for the use of BMI to determine obesity in children is provided by Pietrobelli, Faith, Allison, Gallagher, Chiumello, and Heymsfield (1998) who performed a validation study to examine BMI as a measure of adiposity among children and adolescents (n=188). This study concluded that BMI is a good means to approximate obesity.

Participants were obtained from Women, Infants and Children (WIC) clinics which is a Special Supplemental Food Program for Women, Infants and Children. The program is federally funded and operated by the Nevada State Health Division whose goal is to improve the health of Nevada residents who are eligible for WIC services due to a moderately low income and an identified nutritional deficit. The Parental Perception Nutrition Survey (PPNS) was used to obtain the data (See Appendix C).

Background of the Problem

There is a lack of research regarding parental perceptions in relation to their preschool child's weight, particularly, in low income Americans. Myers and Vargas (2000) studied 200 low income families participating in WIC to determine parental
perceptions of the preschool obese child. They found that 35% of parents of preschool children (age 2-5 years), primarily of Hispanic background, did not believe that their obese child (>95th percentile for weight and height) was overweight, and 53% of the parents stated they had no difficulty controlling what the child ate. These parents were remarkably concerned about heart disease later in life for an obese child (78%), as well as being concerned about little energy (11%), low self-esteem (2.7%), and few friends (1.1%) for their child.

Young-Hyman, Herman, Scott and Schlundt (2000) studied caregiver perception of children's weight-related health risks in 111 African American families with children under the age of 10 years (57% were obese and 12% were superobese). Their results were comparable to Myers and Vargas (2000); 56% of parents did not believe that their child's weight was a health problem. The researchers hypothesized that African American parents may overlook the connection between childhood obesity, adult obesity and the high risk of developing weight-related chronic conditions.

Significance of the Study

Health professionals have a need for information about parental perceptions regarding their preschool child's weight. The present study is an expansion of Myers and Vargas (2000) who suggested that health care professionals need to keep parental perceptions, beliefs, and level of understanding of parents in mind. The findings of this study will assist in providing greater understanding of how parents perceive their child's weight in relation to whether the child is underweight, normal weight or overweight. It is important for health professionals to learn more about parental perceptions regarding
their child’s weight status, particularly in different cultures and in low income Americans because these groups tend to have higher risk for obesity (Mei, Scanlon, Grummer-Strawn, Freedman, Yip, & Trowbridge, 1998; Ogden, Troiano, Briefel, Kuczmarski, Flegal, & Johnson, 1997).

Purpose

The purpose of this study is to describe parental perceptions of their preschool child’s weight status by examining parental responses on the PPNS and comparing this information to the BMI of the preschool child.
CHAPTER 2

LITERATURE REVIEW

Introduction

This chapter reviews relevant literature regarding childhood obesity. Many factors are related to childhood obesity, but not all of these factors are addressed in this research study, therefore a brief sample of literature is provided. Dietary influences (Tucker, Seljaas, & Hager, 1997), the amount of physical activity and the amount of television viewing (Hanley, Harris, Gittleson, Wolever, & Zinman, 2000; Robinson & Killen, 1995) may be linked to childhood obesity. Research has shown that obesity has many detrimental psychological effects on self-esteem (Cameron, 1999; Manus & Killeen, 1995; Pierce & Wardle, 1997), body-esteem (Stradmeijer, Bosch, Koops, & Seidell, 2000; Smolak, Levine, & Schermer, 1999), and how obese children are viewed by peers (Bell & Morgan, 2000; Rand & Wright, 2000). There also has been extensive research on treatment and interventions with obese children which have had varied results (Epstein, Paluch, Gordy, & Dorn, 2000; Epstein, Paluch, Gordy, Saelens, & Ernst, 2000; Golan, Fainaru, & Weizman, 1998; Golan, Weizman, Apter, & Fainaru, 1998; Golan, Weizman, and Fainaru, 1999; Myers, Raynor, & Epstein, 1998; Valverde, Patin, Olivera, Lopez, & Vitolo, 1998).
This literature review focuses on topics such as parental perceptions, parental influences, ethnic and gender differences, and morbidity and mortality related to obesity, as well as goals of Healthy People 2010 that are related to obesity in children. These various topics give background knowledge regarding the influences on and the incidence of childhood obesity. A description of a meeting held with WIC dieticians is provided in order to describe the client process within WIC and provide support for the use of WIC clients in this study.

Pender's Revised Health Promotion Model (HPM) was used to guide this study. A brief review of studies using her model is done to provide support for its use in this study with WIC clients. Pender's HPM has been used in several studies involving different cultures and different socioeconomic levels to determine health promoting behaviors. A summary of the literature review is included to support the need for this research study.

Parental Perceptions

The following studies explore parental perceptions of childhood obesity. Myers and Vargas (2000) studied parental perceptions regarding obesity in preschool children in a primarily Hispanic population. Myers states that their study was a very practical study, using a 5 question survey, without the use of a model. The study was pursued due to a perceived lack of success in weight control with high risk children in the WIC program and a curiosity to determine if parental perceptions could be affecting their success. The results showed that 35% of the 200 parents whose preschooler was over the 95th percentile for height and weight did not believe that their child was overweight,
but 72% of these parents were concerned about heart disease in these children when they get older. The researchers discuss the possibilities that parents cultural beliefs may have an effect on whether they see their child as obese or whether they do not. Ultimately, the health care provider must integrate the parental beliefs and level of understanding into the assessment and intervention process in order to reduce the rate of weight gain in children who are at risk (Myers & Vargas, 2000).

Young-Hyman, et al., (2000) studied care giver perceptions in 111 African American families regarding obesity-related health risks in their 5-10 year old children. This study was done as a part of a larger program to determine the efficacy of weight management programs for African American families. The goal of this study was to examine how the care giver perceived the body size of their child in relation to the risk of chronic diseases like diabetes. Family history of obesity and chronic diseases, such as diabetes were also explored. Results showed that 57% of their sample was obese and 12% were super-obese, but 44% of care givers responded that their child’s weight put them at risk for health problems such as diabetes, hypertension, or coronary artery disease.

Young-Hyman, et al. (2000) found that a parent’s perception of their child’s weight related health risk was not influenced by the presence of a family history of obesity, diabetes, and heart disease. The researchers suggest that the results of this study do not represent the sample population fully because only 10% of the families screened for this study were willing to participate. Due to the high numbers of parents who did not want to participate in the study, the researchers assume that parents who did not want their children to participate in the diabetic screening or the weight-
management program “did not perceive their child’s weight to be worthy of attention at the present time, believed the children might grow out of being overweight, felt incapable of altering their child’s weight status, or did not perceive their child to be significantly overweight” (p.245). The researchers suggest that the African American culture may minimize their child’s health risks related to obesity due to cultural acceptance of a larger body habitus, and lack of knowledge regarding the long term health risks.

Striegel-Moore and Kearney-Cooke (1994) studied 1276 parents who had a child between the ages of 2-16 years regarding their attitudes and behaviors about their child’s physical appearance. Parental response from a 77-item questionnaire (most questions were on a 5-point rating scale) on body image concerns included assessment of their child’s attractiveness, and what parents had done to change their child’s appearance was analyzed. They found that parents were generally satisfied with their child’s physical appearance, the amount that the child eats, and the amount of physical activity, however, the amount of praise and level of satisfaction with their child’s appearance lessened during the child’s grade school years and into adolescence.

Parental Influences

The following studies found that parents have a major influence on the incidence of a child developing weight problems. Parents are usually the primary care givers and have control over the types of foods that a child eats from birth. In a study of 156 white, non-Hispanic families with 5 year old daughters, Birch and Fisher (2000) studied the relationship of the mothers’ child-feeding practices and their daughters weight.
Through the use of multiple questionnaires it was found that mothers who are concerned about their own weight are more likely to engage in child-feeding practices that restrict and monitor what their daughters eat for fear that the child will become overweight. Due to the restrictive eating controls by the mothers, it was found that their daughters developed less self-control of food intake. According to the findings, the researchers believe this could manifest into sneaking or hiding food which may increase the likelihood that they will become obese. It was also found that heavier mothers had heavier daughters in this study (Birch & Fisher, 2000).

Saelens, Ernst, and Epstein (2000) found a positive association between mothers with both a higher BMI and disinhibited eating patterns, and their concern about their child's risk of developing obesity. If a mother was concerned about her own weight she was more likely to control the child's eating patterns regardless of whether the child was obese or not (Saelens, et al., 2000).

A 5 year prospective study of 216 newborns and their parents by Stice, Agras, and Hammer (1999) investigated the risk factors for the development of eating disorders starting from birth. They looked at such factors as inhibited eating (a child who is shy to eat in the presence of others), secretive eating, overeating, and vomiting to predict the onset of disturbed eating patterns. They noted a pattern over the 5 years of a higher percentage of secretive eating (18.1%) and overeating (33.8%) compared to inhibited eating (9.7%) and vomiting (9.7%) which suggests that eating disturbances can develop during early childhood. They also found a relationship between maternal BMI and a child's concern for becoming overweight themselves and, from the data, speculate that this concern could manifest inhibited eating behaviors. A relationship was found
between maternal dissatisfaction with her own body, striving for thinness, and paternal history of being overweight. This was related to the development of the child modeling these ideals and internalizing these same goals. Lastly, elevated infant BMI, and elevated infant adiposity was related to avid feeding and the development of overeating in childhood. Although the researchers identified numerous limitations, collectively the data does show that parental and infant characteristics are related to the development of eating disturbances (Stice, et al., 1999).

Smolak, Levine, and Schermer (1999) studied the effect of parental comments on fourth (299) and fifth (253) grade girls and boys. This comparative descriptive study surveyed 131 mothers and 89 fathers. They found when mothers complained about their own weight and made comments about their daughters weight, the daughters had responses of being concerned about getting or being too fat. A father’s concern about his weight also had an effect on daughters concern about being fat, and only fathers comments had any effect on the sons concern for being fat. On a more positive note, it was found that a paternal belief in the effectiveness in dieting was associated with higher body-esteem and fewer weight loss attempts for both daughters and sons, and, daughters were also less concerned about becoming fat due to the paternal beliefs. Smolak, et al. (1999) suggests that their findings show a definite correlation between parental comments and the fears of their children, especially girls, of becoming fat, increased body dissatisfaction and several weight loss attempts. They suggest that working with the parents in primary care may prevent these beliefs from developing in these young children.
Krahnstoever and Lipps (2001) studied the relationship between weight status and self-concept in 197 five-year-old girls and whether parental concern about their child being overweight or restricting access to food was associated with negative self-evaluations among the girls. It was found that mother's who were overweight themselves were more accepting of their daughter's weight status and maintained more positive interactions with them. Both maternal and paternal concern about the daughter's weight status and restriction of food access was associated with lower self-perceptions in the girls. Mother's who were more restrictive in allowing food access to daughters with higher weight status correlated with lower perceived cognitive and physical abilities among the girls. Interestingly, it was found that independent of the girls' weight status, higher paternal concern about their daughter's weight status was associated with lower body-esteem, and higher maternal concern was associated with lower perceived physical and cognitive ability in the girls. These findings support the need for concern because girls at such a young age are developing low body esteem, low perceived cognitive ability, and low perceived physical ability which may lead to early dieting as a means of improving self-worth and body satisfaction. Early dieting or weight control by limiting caloric intake may impede the normal growth of childhood (Krahnstoever & Lipps, 2001).

A retrospective cohort study done by Whittaker, et al. (1997) looked at predicting obesity in young adulthood based on childhood and parental obesity using 854 participants who were born between 1965 and 1970 in Washington State. Height and weight measurements were taken from medical records from members of Group Health Cooperative of Puget Sound. Their results showed that the probability of being
obese in young adulthood correlated with obesity in childhood and increased with age. The researchers used odds ratios to show that obesity in children under 2 years of age showed no increased risk of developing obesity in young adulthood, but over 6 years of age the probability was greater than 50% compared to 10% in non-obese children. When looking at the development of obesity in young adulthood in relation to obesity of parents, a greater risk was found of developing obesity at every age level for both the obese and non-obese children if at least one parent was obese. This risk was noted to be highest in children under the age of ten. As an example, “among non-obese one- and two-year-olds, those with at least one obese parent had a greater chance of being obese as adults than those without an obese parent (28% vs. 10%), and among obese three-to-five-year-olds, the chance of adult obesity increased from 24% if neither parent was obese to 62% if at least one parent was obese” (Whittaker, et al., 1997, p.872). The researchers offered the explanation for this increased risk as possibly due to shared genes or environmental factors within families. They also caution providers to avoid treating children for obesity under age 3 who have no obese parents, but be aware of the susceptibility for obesity when one or more of the parents are obese. According to the results of this study, these factors should be identified and then used to guide prevention efforts (Whittaker, et al., 1997).

Further support of the influence that parents and the home environment have in the incidence of obesity in children was found by Strauss and Knight (1999). Their prospective cohort study investigated the association between the home environment and socioeconomic factors, and the development of obesity in childhood. Their sample consisted of 2913 normal weight children followed over 6 years (age 0-8 years). Results
of this study supported that the home environment was a critical factor in the development of childhood obesity. Factors such as households headed by single mothers, minority children, low income families, parents with low education, and home environments with low cognitive stimulation increased risk for development of obesity. Overweight mothers increased the risk of their child becoming obese to 1.5-fold, and obese mothers increased the risk of their child becoming obese to three-fold. Children in middle-income families had a 1.8-fold increased risk and low-income children had a 2.8-fold risk of becoming obese over the 6 years of the study. Black children had a >86% risk of developing obesity over the 6 years compared to white children (Strauss & Knight, 1999).

The researchers hypothesize that their findings in families with lower socio-economic status who have shown an increased risk of developing obesity may be due to a poor home environment where children may be less physically active, may have less healthy eating patterns, and may have a home environment that is less stimulating or interactive, although it was found that there was no association found between family emotional support and the development of obesity. The children who became obese were just as likely to be hugged, kissed, or spanked as children who did not become obese (Strauss & Knight, 1999).

**Ethnic and Gender Differences**

Many studies have been done to compare the occurrence of obesity and other variables related to obesity like blood pressure, serum lipid levels, dietary fat intake, and activity level among different ethnic groups and between males and females. Brown,
Sothern, Suskind, Udall, and Blecker (2000) studied racial differences in lipid profiles of obese children and adolescents before and after significant weight loss. Their sample consisted of both male and female African-American versus Caucasian children who were enrolled in a 1-year weight loss program. Although the program lasted for a year, participants were involved in a 10 week intensive period that focused on acute weight loss, diet and nutrition education, exercise intervention/instruction, and behavior modification sessions. Results showed that all groups had a significant weight loss, but Caucasian males reduced their total cholesterol more significantly than the African-American males. Between Caucasian and African-American females, there was no significant difference in total cholesterol or triglyceride levels at baseline or at the 10 week follow-up. The researchers believed the multidisciplinary approach for weight reduction was successful for the most part, including lowering serum lipid profiles in all the obese children, but African-American children showed a less dramatic decrease in their lipid profile compared to Caucasian children. This could explain the higher prevalence of cardiovascular disease in the African-American population (Brown, et al., 2000).

Menard, Park, and Scholfield (1999) did a 4-year study called The San Antonio Biethnic Children’s Blood Pressure Study where they compared 4195 Mexican-American (M-A) males and females to 2039 non-Hispanic white (W) males and females from kindergarten through 12th grade. In addition to blood pressure, they took anthropometric measurements which were the main focus for comparison. Their results showed that M-A children are generally shorter, but weigh the same or more as W children, and the M-A children have a higher body mass index (BMI). The M-A
children also tended to have more fat tissue as shown in the subscapular and tricep skinfold thickness. Interestingly the researchers compared their present data regarding BMI to other studies done in the past, 16 years ago for the M-A children and 25 years ago for the W children, and an increase was seen in BMI across all groups with a more significant increase seen in the M-A children. Although there was no data reported regarding comparisons of blood pressures, the researchers identify that blood pressure levels are known to be well correlated with height, weight, and BMI (Menard, et al., 1999).

Hernandez, Uphold, Graham, and Singer (1998) used 309 preschool children from a Head Start program to identify the prevalence and correlates of obesity by doing a chart review. Their results showed no significant relationship between obesity and gender, racial group, socioeconomic status, general health problems or behavior problems. The only significant relationship found was between obesity and elevated blood pressure where 13% of the children in the obese group had an elevated blood pressure and only 4% of children in the non-obese group had an elevated blood pressure. The Head Start population in this study had a significantly high percentage of obesity in general (32%) which the researchers state is higher than in previous studies supporting an imperative need that these preschool children should continue to be screened.

The Bogalusa Heart Study examined secular (intermittent) increases in relative weight and adiposity among children ages 5-24 years old between 1973 and 1994 (Freedman, et al., 1997). This study was done as a community-based project to identify cardiovascular disease risk factors in early life. It included both black and white children in Bogalusa, Louisiana. The ratio of black and white children in Bogalusa in 1980, was
30% and 70% respectively. The results of this study showed a mean weight increase of .2 kg/yr, a mean skinfold thickness increase of .15 mm/yr, and the prevalence of overweight approximately doubled from 1973-1994 with very little difference found across race-gender groups.

Ogden, et al. (1997) examined the prevalence of overweight among U.S. preschool children aged 2 months to 5 years between the years 1971 through 1974 (first National Health and Nutritional Examination Survey [NHANES I]) and 1988 through 1994 (NHANES III). NHANES III is a nationally representative sample of the total noninstitutionalized civilian population from 50 states and the District of Columbia. NHANES III is the primary focus because it was the only study in the series designed to include large numbers of preschoolers (aged 2 months and older) with a total of 7784 children aged 2 months to 5 years included. The most significant increase in weight was found at age 4 to 5 years where the prevalence of overweight was higher among girls for all racial/ethnic groups (more than 10% of all girls were overweight). Among the three different racial/ethnic groups (non-Hispanic white, non-Hispanic black, and Mexican-American) the Mexican-American children had the highest prevalence of overweight (12% for boys and 13.2% for girls). The non-Hispanic black children had intermediate prevalence (8.7% for boys and 12.6% for girls) and the non-Hispanic white children had the lowest prevalence (4.3% for boys and 11.2% for girls) (Ogden, et al., 1997).

Mei, et al. (1998) examined information available from the Centers for Disease Control (CDC) and the Prevention Pediatric Nutrition Surveillance (PedNSS) from 1983 to 1995 regarding the prevalence of overweight among U.S. low income preschool children. These two sources provided clinical records from children who participated in
WIC (1,504,063 children aged 2 months to 5 years). NCHS growth charts were used to determine percentile for ht/wt ratio. They found, in children > 24 months of age, an absolute increase of 2.9% for boys and 3.4% for girls when the 85th percentile was used for the cutoff point, and an absolute increase of 1.7% for boys and 1.8% for girls when the 95th percentile was used for the cutoff point. The prevalence of overweight for girls is significantly higher than for boys (p<0.05) (Mei, et al., 1998).

The prevalence for overweight in children aged 2-5 years was highest among Hispanics compared to non-Hispanic blacks and non-Hispanic whites in both 1983 and 1995 although the absolute increase in the prevalence of overweight from 1983-1995 was highest in non-Hispanic blacks (4.3% at the 85th percentile and 2.6% at the 95th percentile). Non-Hispanic whites aged 2-5 years had the second highest absolute increase in the prevalence of overweight (3.0% at the 85th percentile and 1.5% at the 95th percentile) and Hispanics had the lowest absolute increase (2.2% at the 85th percentile and 1.4% at the 95th percentile) (Mei, et al., 1998).

Hanley, Harris, Gittleson, Wolever, and Zinman (2000) studied the prevalence of pediatric overweight and associated behavioral factors in 445 children and adolescents (aged 2-19 years) in a Native Canadian Community where high rates of adult obesity and type 2 diabetes exists. The overall prevalence of overweight in this pediatric population was high (27.7% in boys and 33.7% in girls). The researchers compared their data to the National Health and Nutrition Survey (NHANES III) and the percentage of overweight was higher in all age and gender categories for the Native Indian Canadians. Higher levels of physical activity and consumption of adequate fiber was found to dramatically decrease the risk of being overweight. Hanley, et al. (2000)
concluded from the data, that the pattern of pediatric obesity found in this study is concerning in light of the increasing burden of diabetes and metabolic disorders in this and similar Native Indian Canadian communities.

Morbidity and Mortality

Some classic studies have been done to determine long-term morbidity and mortality in relation to childhood weight status. Abraham, Collins, and Nordsieck (1971) did a follow-up study looking at the relationship of childhood weight status to morbidity in 1506 adult white males. Between 1961-1963 they reviewed charts from 30-40 years ago and then contacted all the participants to obtain adult health status to compare to their childhood data. Their results showed a strong tendency toward increasing weight from childhood to adulthood. Children who were average weight became moderately or markedly overweight as adults and children who were moderately overweight or markedly overweight as children remained overweight into adulthood. Higher rates of hypertensive vascular disease were found in both the moderate and markedly overweight groups of adults, but surprisingly these participants had been in the below average weight group as a child. Hypertensive vascular disease was found to have the same prevalence in adults who were overweight in childhood and adulthood, as well as adults who were both average weight in childhood and adulthood (Abraham, et al., 1971).

Mossberg (1989) summarized a 40 year follow-up of 504 overweight children who had been admitted to a hospital between 1921 and 1947 in Sweden. Results regarding morbidity showed that there was a high incidence of cardiovascular disease
(29.1%) across all age groups, and cardiovascular disease was also the highest cause of death (43.6%). Must, Jaques, Dallal, Bajema, and Dietz (1992) studied long-term morbidity and mortality of overweight adolescents using data from the Harvard Growth Study of 1922 to 1935. Increased incidence of heart disease, atherosclerosis, gout, colorectal cancer, hip fractures, and arthritis was found in relation to being overweight in adolescence. They found that women who were overweight in adolescence reported more difficulty with activities of daily living and had a 1.6-fold increase in the development of arthritis. After 55 years of follow-up, obesity in adolescence for both men and women increased the relative risk of mortality related to coronary heart disease, atherosclerotic cerebrovascular vascular disease and colorectal cancer.

Anding, Kubena, McIntosh, and O’Brien (1996) studied 54 boys and girls aged 14 and 15 years old to identify and compare coronary heart disease (CHD) risk factors. The sample was taken from public schools in 2 central Texas cities. The adolescents were eligible to participate if they had no personal history of high blood pressure, diabetes, or heart disease, and they were not pregnant. Results showed that 41% of boys and 48% of girls were obese, and 33% of boys and 80% of girls needed improvement in their cardiovascular fitness level. Dietary fat and cholesterol intake was analyzed by both a 24 hour recall and a 2-day food record. Boys and girls consumed 34% and 36% of their total energy from fat respectively, and 84% of boys and 96% of girls consumed greater than 10% of energy from saturated fat. Girls had higher mean concentrations of total cholesterol, HDL, and LDL compared to the boys. Only 3 of the participants had elevated blood pressures, but 7% of boys (n=2) and 4% of girls (n=1) had blood pressure levels suggestive of hypertension. It was significant to see that more
than 80% of participants had at least one risk factor for CHD and 25% had two or more risk factors (Anding, et al., 1996). This study is significant for health care providers because it shows risk factors for CHD in adolescents which includes obesity and nutritional intake.

Healthy People 2010

Healthy People 2010 goals are a focus of preventative care for the whole nation to strive for. The goals are significant because they consider the risk factors and the importance of preventing obesity in children. Healthy People 2010 has 10 Leading Health Indicators with physical activity, and overweight and obesity being the top two on the list, respectively (U.S. Department of Health and Human Services, Healthy People 2010, Vol I, 2000). Regular physical activity throughout life is required to maintain a healthy body, enhance psychological well-being, and prevent premature death. According to data provided in the Leading Health Indicators, in 1999, 65% of adolescents engaged in the recommended amount of physical activity and the targeted goal for Healthy People 2010 is to increase that number to 85% of adolescents participating in regular physical activity. Populations with low rates of physical activity are women (at all ages are generally less active then men at all ages), people with low incomes and less education, African American and Hispanics are generally less physically active than whites, adults in northeastern and southern states tend to be less active than adults in the north-central and western states, people with disabilities, and older people (over age 75).
Overweight and obesity is the second Leading Health Indicator (U.S. Department of Health and Human Services, Healthy People 2010, Vol. I, 2000). Obesity increases the risk for hypertension, hypercholesterolemia, type 2 diabetes, heart disease and stroke, gallbladder disease, arthritis, sleep disturbances and difficulty breathing, and many cancers. It can also cause social stigmatization, discrimination, and decrease self-esteem in obese individuals. Populations at high risk for obesity include adolescents from low income families who are twice as likely to be overweight or obese compared to adolescents from middle or high-income families, women with lower incomes, and African American and Mexican American women are more likely to obese than white women. There is a tremendous gender difference in regards to obesity where the proportion of African American women who are obese is 80% higher compared to the proportion of African American men who are obese. This gender difference is also seen between Mexican American women and men, but the proportion of obese white, non-Hispanic men and women is about the same.

Interview with WIC

A meeting was held on February 7th, 2001 attended by the manager, a Registered Dietician, and the 4 supporting Registered Dieticians who run 5 out of the 13 WIC clinics in Las Vegas, NV, and surrounding area. I was in attendance to review the proposed study, put forth the desire to use their clinics to obtain my sample, to ask questions about WIC and how each clinic was run, to get feedback from these professionals regarding the tool that will be used to obtain the data, and to discuss ways to minimize strain of extra work for the dieticians and their support staff.
The purpose of WIC is to provide nutritional counseling as well as nutritional supplements to pregnant women, and infants and children up to the age of 5 years. Their clients are primarily low income and of various cultural backgrounds. The literature reviewed previously identifies this group at higher risk for obesity. Myers and Vargas (2000) studied perception of WIC parents concluding that further research is needed to learn more about parents perception of their child's weight in this setting.

When clients qualify for WIC due to a low family income and an identified nutritional risk as a pregnant women, or an infant or child up to the age of 5 years, they are admitted to the program. The children have a nutritional assessment completed by filling out forms to assess nutritional intake and have their height and weight taken upon admission. This is repeated every 6 months thereafter.

The study done by Myers and Vargas (2000) was discussed previously. Myers and Vargas (2000) stated in their study that their population of children had about a 21% obesity rate. The dieticians I met with estimated that their population had an approximate obesity rate of 20%. We also discussed their success rate with children identified as high risk. Myers and Vargas (2000) stated that their interventions with the high risk obese children were not as effective as they hoped which prompted them to do the study. The dieticians at these 5 WIC clinics believed that they had about a 50% success rate with their interventions involving high risk children.

Although the dieticians were in support of the proposed study, they were somewhat skeptical about the impact that it would have due to the overwhelming media attention to fast foods, high fat and sugary foods for children, and the relatively low cost
of these foods compared to fruits, vegetables, and other staple items such as fresh meat, eggs, milk, and cereal.

We also discussed the feasibility of the researcher watching the certifiers go through the certification process with clients in order to examine the consistency of how heights and weights are taken. They agreed this would be useful prior to or as part of the pilot study, but before actual data collection. This process would help the researcher to become familiar with staff and the routines of the clinics. The plan included use of 3 of the clinics to obtain a culturally varied sample over the summer months which the staff did not feel should be a problem because client numbers do not decrease dramatically during the summer.

Health Promotion Model

Pender’s Health Promotion Model (HPM) has been used to measure health promoting behaviors for many different cultural groups and various socioeconomic levels. The following studies will be reviewed to provide support for its use with WIC clients. Pender (1996) states that further empirical research must be done using the revised HPM in order to understand the extent to which the model will be useful in explaining, predicting, and altering health-promoting behaviors. Multiple studies have been done testing various concepts of the original HPM which provides valuable data for review in relation to the proposed study. Personal factors in the revised HPM are biologic, psychologic, and sociocultural aspects of an individual which is similar to demographic factors in the original HPM (Pender, 1996). Demographic factors have been examined extensively which is important to the proposed study since ethnicity, age,
gender, and weight/height parameters of parents and children will be examined in relation to parent’s perceptions.

Speake, Cowart and Pellet (1989) examined health perceptions and lifestyles of the elderly. Results showed that demographics were highly correlated with perceptions of health where being more educated, younger, married, caucasian, and female were related to having better perceptions of health. Similar findings by Bacconiere and Oleckno (1999) showed that gender, age, and occupational discipline were significant predictors of overall health-promoting lifestyles. Garcia, Norton Broda, Frenn, Covial, Pender and Ronis (1995) found that activity levels decrease as females go from pre-adolescence to adolescence, but the opposite is true for their male counterparts. The researchers believe that low self-esteem in adolescent females prevents them from participating in self-enhancing behaviors like exercise.

Duffy (1989) believes that women generally seek health care more often and are involved in health-promoting practices more often. Her study examined 420 employed women with regards to their health locus of control, self-esteem, and specific health-promotion activities. It was found that women with sufficient income and no diagnosed health problems were more likely to feel in control of their health, will engage in regular physical activity, and report better health status (Duffy, 1989).

Cultural differences in health promoting lifestyles were found by Felton, Parsons, Misener and Oldaker (1997) and Duffy, Rossow and Hernandez (1996). Felton, et al. (1997) studied racial differences in health definition, health value, and health-promoting behaviors, as well as, age, BMI and socioeconomic status of 62 pairs (n=124) of black and white college women. They found more commonalities than differences existed.
between these college women. Black and white college students with similar
socioeconomic status and BMI held the same health values and health promotion
practices. More black students ranked health among their top three values, 65% versus
45% of white students. The major difference in this group was found in their nutritional
practices and the rate of obesity. Black students were less likely "to choose food with
consideration of preservatives, read food labels, eat three meals a day, and include whole
grains, raw fruits, and vegetables in their diet" (p.663). Black students had nearly twice
the obesity rate where 48% of the black women in this study were obese compared to
26% of white women (Felton, et al., 1997).

Duffy, et al. (1996) studied the health-promoting lifestyles of 397 employed
Mexican American women. The findings from this study were compared to other
published studies done with women which had also used the Health-Promoting Lifestyle
Profile (HPLP). Many of the Mexican American women were employed in health care
related fields. Regardless of socioeconomic status, Mexican American women have
lower scores than White women on factors such as exercise, health responsibility,
nutrition, and stress management behaviors (Duffy, et al., 1996).

Summary

Many research studies have been reviewed that identify pediatric obesity as a
problem in our society today with many long-term effects. It has been shown that
childhood obesity has many causes. Parental influences are dramatic, whether it be in
relation to the incidence of obesity of the parents themselves, the comments and
behaviors of the parents, or environmental factors. Understanding the parental
influences are extremely significant for the proposed study. The proposed study incorporates these factors when looking more specifically at parental perceptions regarding childhood obesity.

There are very few recent studies dealing with parental perceptions of childhood obesity. Learning more about parental perceptions is significant because the majority of interventions are geared toward the parents when the child is very young, the time when preventative teaching regarding obesity can be addressed. Many families may not be aware of the problems that obesity can cause in the long-term and do not seek assistance. It has been shown that if a child continues to be obese into adolescence, their risk of remaining obese into adulthood is very high. If parents do not believe that obesity is a problem due to cultural beliefs or lack of understanding, then interventions must consider these factors and be individualized for various situations.

Startling evidence regarding long-term morbidity and mortality related to childhood obesity has also been identified and supported. Cardiovascular disease remains the number one cause of death of Americans with which obesity is found to be highly correlated (National Center for Health Statistics, 1998). Even more importantly, specific ethnic populations, such as Hispanics and African Americans, are at an even higher risk for these diseases.

The meeting with WIC dieticians provided insight into how their program works and supports the need for this study to be conducted with WIC clients. The high rate of obesity in this generally low socioeconomic and culturally diverse population is concerning in light of all the literature that has just been reviewed. These children are at
higher risk to remain obese into adulthood if interventions are not effective at this young age.

A brief review of studies using Pender’s HPM provides a base to support its use in this study. It has been shown that gender, age, culture, education, and socioeconomic status has a bearing on health-promoting activities. These concepts were studied as well as other concepts of Pender’s HPM in order to determine the relationship between the parents perceptions and the child’s weight status.
CHAPTER 3

FRAMEWORK

Introduction

The following chapter contains a general overview of Pender’s Health Promotion Model (HPM) and how it relates to the present study. Specific concepts and variables from Pender’s Framework used in this study are defined and discussed in relation to childhood obesity and parental perceptions regarding their child’s weight. The relevance of this theory in nursing knowledge and how this study using this framework hopes to add further to nursing’s body of knowledge will also be discussed. The research questions are identified. Conceptual and operational definitions of Pender’s variables used in this study are discussed to provide a clear understanding between the HPM, the tool and how they were used to test the research questions.

Pender’s Revised Health Promotion Model

Pender’s Revised Health Promotion Model (HPM) was released in 1996 with slight changes from her original HPM in 1980. Her framework was developed primarily from social learning theories aimed at assisting nurses and other health professionals to predict overall health promoting lifestyles and behaviors in people of all ages and within various communities (Pender, 1996). This study looked at parental perceptions of their
child's weight in relation to the child's BMI percentile. From the multitude of studies done regarding childhood obesity, this is a target area for health promotion interventions in society today because obesity is increasing rapidly in the pediatric population. Pender's HPM has multiple variables that are predicted to enhance or inhibit a person from reaching the final outcome of performing a health promoting behavior (See Appendix B) (Pender, 1996).

The following defines concepts of Pender's HPM used to guide this study in learning more about parental perceptions. Prior related behavior is a concept of the HPM which predicts that past behavior has a direct effect on a person's current attempts at health promoting behaviors due to habit formation (Pender, 1996). This concept can be related to childhood obesity. A child develops eating habits and makes food choices on the basis of what is learned at home, the availability of food and influences of parental modeling (Birch & Fisher, 2000; Golan, et al., 1999; Krahmstoever & Lipps, 2001; Whitaker, et al., 1997).

Personal factors have been categorized as biologic, psychologic, and sociocultural in the HPM (Pender, 1996). Biologic factors such as age and gender have been shown to correlate with obesity. Obesity at a young age which continues into adolescence increases the likelihood (50%) that individuals will remain obese into adulthood (Whitaker, et al., 1997). Females generally tend to have higher BMI or body fat content compared to their male counterparts (Brown, et al., 2000; Menard, et al., 1999). Must, et al. (1992) found that obese women, who were obese in adolescence, had a higher incidence of morbidity in adulthood. Psychologic factors such as perceived health status are important when considering how families view weight status. An
example can be taken from Young-Hyman, et al. (2000) where parents of obese children did not see their child's weight as a problem even in the presence of other family members having chronic illnesses such as hypertension, diabetes and coronary artery disease which are strongly linked to obesity.

Sociocultural factors such as ethnicity are related to obesity. It has been shown that African-American and Mexican-American children tend to be more obese than Caucasian children (Brown, et al., 2000; Menard, et al., 1999; Robinson & Killen, 1995). Consideration of all of these personal factors together needs to be addressed when predicting a person's attitude and ability to perform a health promoting behavior according to Pender (1996).

The previous variables, prior related behavior and personal factors, are unique to each individual and difficult to alter. Pender's HPM has a number of variables categorized under Behavior-Specific Cognitions and Affect (1996). She states these are critical "core" variables with motivational significance that nurses and other health professionals will most likely be able to target with their interventions. Not all of these concepts will be used in this study and only the ones used in this study will be described.

Activity-related affect in Pender's HPM refers to the subjective feelings that one gets from performing a behavior. It can be a positive affect or a negative affect (Pender, 1996). Pender (1996) describes it as an emotional response or gut-level reaction where behaviors are more likely to be repeated if they are related to a positive affect and less likely to be repeated if it is related to a negative affect. A feature in Newsweek discussed the dilemma that parents may face when their child is obese and some families shared their stories (Begley, 2000). Parents feel like they are walking on an emotional
tightrope by trying to love their child without giving the child the feeling that they are turning against them when trying to control their child’s weight. Occasionally a child will come to a parent and ask for help like Sean (age 7), in Chicago who turned to food when his parent’s was divorced. Sean was 4 feet tall and weighed 96 pounds. He went to his mother because he stated he was being teased at school and he wanted it to stop, but this is not a common occurrence. Parents are torn about when and how to intercede with their child’s weight gain (Begley, 2000). Although treatment is not a factor in this study, the emotions that parents may feel are important to consider.

Pender (1996) describes interpersonal influences as cognitions that are affected by the behaviors, beliefs, and attitudes of others such as family, peers, or health care providers. Interpersonal processes may be influenced by social norms. Individuals will be more likely to perform a behavior if they will be socially accepted or socially admired. Some cultures place more emphasis on interpersonal influences than others. Young-Hyman, et al. (2000) found that the African American culture is known to be more tolerant of a larger body habitus and therefore does not place as much importance on maintaining a child’s weight within recommended guideline for age. Due to cultural beliefs, parents underestimate their child’s risk for developing chronic illnesses as a result of the child’s weight even in the presence of a family history of hypertension and diabetes (Young-Hyman, et al., 2000).

Situational influences in the HPM are direct and indirect influences on health promoting behavior (Pender, 1996). Pender (1996) describes it as an environment that is full of cues that trigger action. In regards to the proposed study, parents of obese children may not see their child as overweight and therefore do not see it as a problem
with long-term harmful effects. Likewise, if their health care provider fails to discuss concerns regarding the obesity of the child and perhaps the obesity of the parent as well, then parents may not realize that there is a problem. Simply addressing the issue may provide those cues to trigger action for parents to work towards health promoting behaviors. Pediatricians did not rate screening for diet, exercise, and lipid levels in children as a top priority (Nader, et al., 1987). Francis (1999) discussed the status of the Healthy People 2000 guidelines and noted that only 30% of primary care providers inquired about exercise habits or counseled their sedentary patients about exercise.

The final variables of Pender's HPM are under the heading of Behavioral Outcomes (Pender, 1996). An individual makes a commitment to a plan toward performing a health-promoting behavior. The health-promoting behavior is the end-point of Pender's HPM and it is hoped that individuals will embrace a healthy lifestyle throughout the rest of their life span (Pender, 1996). Only the variables used in this study will be described.

Immediate competing demands and preferences may intrude upon an individual's consciousness and prevent the outcome of a health-promoting behavior. Competing demands are seen as alternative behaviors that an individual has little control over such as work or family care responsibilities (Pender, 1996). Myers and Vargas (2000) provides an example of this where 6% of the parents in their study stated that their child was cared for by a babysitter or in daycare for the majority of the day so therefore they had no control over what the child ate.

Pender (1996) describes competing preferences as alternative behaviors which an individual has a high level of control, but depends on the individuals will power.
pressure, and a society full of snack foods and soda make it difficult for individuals to overcome those competing preferences. An example of this was featured in a story in Newsweek about the increasing incidence of childhood obesity, and some families shared their stories of fighting childhood obesity (Cowley, 2000). One girl, who was 200 lbs. going into 8th grade was trying hard to lose weight. She had lost 25 lbs thus far, but shared her feelings about what makes it hard for her to lose weight. She feels that she is constantly pressured in the wrong direction in order to try to fit in, “My friends go to McDonald’s and Sonic and Casa Ole and they just eat and eat’ she says. ‘And when they are not eating, they go to the mall”’, rather than participating in physical activities (p.44). The above overview of Pender’s HPM describes specific variables of her model that relate to the purpose of the present study. The variables of prior related behaviors, personal factors, activity-related affect, situational influences, and immediate competing demands and preferences have been reviewed in relation to parent’s perceptions of their child’s weight. Pender’s HPM will be used loosely in this study as a guide to assist in understanding parental perceptions.

Framework Related to Nursing’s Body of Knowledge

The HPM developed by Pender, incorporates the multidimensional nature of individuals interacting with their environments as they attempt to pursue health. The holistic perspective of nursing works well with this framework because it considers the whole realm of human functioning. Pender identifies nurses as leaders for health promotion and illness prevention internationally. Pender’s review of multiple studies which utilized numerous variables from her HPM showed adequate predictive
performance of her model (1996). She states that situational influences is a variable that has not been studied extensively, but may help to explain important factors related to engagement in health promoting behaviors. This study using Pender’s HPM, has contributed further to nursing’s body of knowledge by assisting health professionals to learn about parental perceptions of childhood obesity, particularly their own child’s obesity.

**Research Questions**

1. What is the relationship between the parental perception of the child’s weight on question #7 on the PPNS and the BMI percentile of the child?

2. What is the relationship between the ethnic background identified on the PPNS and the accuracy of the parental perception of the child’s weight on question #7 on the PPNS?

3. What is the relationship between the number of times the child eats fast foods and the BMI percentile of the child?

4. What is the relationship between the number of times the parent eats fast foods and the parent’s perception of their own weight?

5. What demographic data (age of the parent and education) are related to accurate parental perception of the child’s weight?

6. What is the relationship between the comment of a health professional as reflected by question #11 on the PPNS and the parental perception of the child’s weight?

7. What is the relationship between the comments of relatives as reflected by question #12 on the PPNS and parental perception of the child’s weight?
8. What is the relationship between the comments of friends as reflected by question #13 on the PPNS and the parental perception of the child’s weight?

Study Variables

The following study variables from Pender’s HPM (1996) link the framework to the study purpose using the Parental Perception Nutritional Survey (PPNS)(See Appendix C) as the tool. Each study variable will be conceptually defined from Pender’s HPM (1996) and then each variable will be operationalized by specific questions in the tool. These variables from Pender’s HPM (1996) were described in the previous section for their relevance to this study and to WIC clients. They will be used to guide the present study as follows:

Prior Related Behavior

Prior related behavior is conceptually defined as past behaviors or habits that may have a direct or indirect effect on whether an individual will engage in current health promoting behaviors (Pender, 1996). Prior related behavior of the child is operationally defined as the parental response on the PPNS for question #9, how often does your child eat fast foods, and the prior related behavior of the parent is operationally defined as the parental response on the PPNS for question #10, how often do you eat fast foods.

Personal Factors

Personal factors are conceptually defined as biologic, psychologic, and sociocultural factors. Personal biologic factors are age, gender, and BMI, personal psychologic factors are self-esteem, self-motivation, or perceived health status, and
personal sociocultural factors are race, ethnicity, education and socioeconomic status (Pender, 1996). For this study, biologic personal factors in this study are operationally defined as the age of the child (#1 on the PPNS), age of parent (#4 on the PPNS), gender of the child (#2 on the PPNS), gender of the parent (#5 on the PPNS), height and weight of child (obtained from the child’s chart at WIC). For this study, the personal psychological factor of perceived health status for the child is operationally defined as whether the parent thinks the child is underweight, normal weight, or overweight (#7 on the PPNS), and perceived health status for the parent is operationally defined by whether the parent thinks that they, themselves are underweight, normal weight, or overweight (#8 on the PPNS). For this study, personal sociocultural factors are operationally defined as ethnicity (#3 on the PPNS) and highest level of education of parent (#6 on the PPNS).

**Activity-Related Affect**

Activity-related affect is conceptually defined as the subjective feeling state that an individual has prior to, during, or following a behavior, and this feeling state may affect whether the individual performs the behavior again. Pender describes it as a gut-level response (1996). A positive affect from a behavior will likely encourage an individual to repeat the behavior whereas a negative affect will likely prevent an individual from performing the behavior again (Pender, 1996). Activity-related affect is operationally defined as the parental response to how they feel about their child’s weight (#17 on the PPNS).
Interpersonal Influences

Interpersonal influences are conceptually defined as the behaviors, beliefs, and attitudes of family members, peers, and/or health care providers that may have an effect on whether an individual will participate in a particular behavior. Interpersonal influences can include expectations of significant others, social supports, and modeling. Consequently, it suggests that individuals are more likely to perform a behavior if they are going to be socially admired because of it (Pender, 1996). Interpersonal influence of health professionals are operationally defined by question #11 on the PPNS, has a doctor or nurse ever told you that your child is underweight, normal weight, or overweight. Interpersonal influences of relatives are operationally defined by question #12 on the PPNS, do relatives comment about your child’s weight. Interpersonal influences of friends are operationally defined by question #13 on the PPNS, do friends comment about your child’s weight.

Situational Influences

Situational influences are conceptually defined as the direct or indirect influences on health behaviors where individuals are affected by their environment. Environments may hold cues that trigger action to determine whether an individual will perform a health behavior (Pender, 1996). The researcher takes the position that situational influences are important because a parent may not take action in regards to a child’s weight unless they see it related to other consequences such as health problems, difficulty playing and getting enough exercise, difficulty making friends, or not feeling good about him/herself. Situational influences are operationally defined as the problems parents think that an overweight child may have (#14 on the PPNS).
Immediate Competing Demands and Preferences

Immediate competing demands and preferences are conceptually defined as alternative behaviors that prevents an individual from performing a health promoting behavior. Competing demands are situations where an individual has little control, like work or family care responsibilities. Competing preferences are situations that an individual has a high level of control, but success is determined by the individual will power (Pender, 1996). Operationally, competing demands are defined as difficulties that a parent may have in controlling what a child eats (#16 on the PPNS). Competing preferences are operationally defined as measures that parents may have tried in order to control their child's eating (#15 on the PPNS).

Other Terms Defined

The following are relevant terms that are important to the study and have been defined in relation to the present study:

1. Parent

Conceptually parent is defined as a mother or father of a child. Operationally parent is defined as the legal guardian who brings the child in for the certification process. WIC requires this otherwise the child cannot be admitted to the program. For the purpose of this study, the parent (legal guardian) was the individual who brought the child to the clinic and filled out the survey.

2. Child

Conceptually child is an infant; boy or girl; son or daughter.
Operationally child is the son or daughter, age 2-5 years, brought to the clinic by parent(s) to be examined.

3. **Perceive/perception**

Conceptually perceive/perception is defined as the means to obtain knowledge through ones senses; observe; understand.

Operationally perceive/perception is defined as how parent’s see their child’s weight as indicated by their answers on the survey as indicated by question #7 on the PPNS, how the parent sees their own weight by question #8 on the PPNS.

4. **BMI (Body Mass Index) Percentile**

Conceptually BMI is defined as the weight for height ratio which is calculated by weight (in kg)/Height (in meters) squared or weight (in pounds)/Height (in inches)/Height (in inches) X 703. BMI percentile is obtained by plotting the BMI on the gender- and age-specific growth chart for children, revised for the Centers for Disease Control and Prevention (CDC) for the United States.

Operationally BMI percentile is defined as the child’s BMI plotted on the CDC Growth Charts where weight was measured in pounds and height was measured in inches. The child’s BMI percentile was be divided into three categories where a(n):  

a) Underweight child has a plotted BMI <5\(^{th}\) percentile  
b) Normal weight child has a plotted BMI between 5\(^{th}\) and the 95\(^{th}\) percentile  
c) Overweight child has a plotted BMI >95\(^{th}\) percentile

5. **Accurate (Accuracy)**

Conceptually accurate (accuracy) is defined as exact; correct.

Operationally accurate (accuracy) is defined as the correct identification of the parent’s
perception of their child’s weight in relation to the child’s BMI percentile where:

a) the parent perceives that the child is overweight and the child’s percentile data places him/her in the overweight category

b) the parent perceives that the child is normal weight and the child’s percentile data places him/her in the normal weight category

c) the parent perceives that the child is underweight and the child’s percentile data places him/her in the underweight category

d) inaccurate category would be those that don’t agree.

Assumptions

1. All participants will respond truthfully on the PPNS.

2. The weight and height measurements plotted as BMI on the CDC Growth Charts to obtain percentile data is an accurate measurement of the child’s weight. Therefore, the categories of underweight, normal weight or overweight are accurate classifications for the child.

3. All WIC certifiers have the same base training and follow WIC protocols, therefore it is assumed, they are collecting all the weight and height data in the same manner, and recording the data on the child’s chart accurately.
CHAPTER 4

METHODS & PROCEDURES

Introduction

This chapter presents the design of the study, population and sample. Measurement strategies including tool development, are reviewed. Human Subjects Rights approval, as well as the procedure for data collection including the pilot study results are discussed.

Design

This study used a descriptive design to examine and describe the parents' perception of their preschool child's weight. A descriptive design assists in learning more about parental beliefs and level of understanding about their child's weight ( Burns and Grove, 1997).

Population and Sample

The target population for this study was parents of preschool children who were participating in the WIC (Women, Infants, & Children) program. The accessible population was parents of preschool children who obtain services from WIC Clinics in Las Vegas, NV. Convenience sampling was used. Inclusion criteria for the study was a
parent of a child aged 2-5 years old who was receiving WIC services, and willingness to participate in the study. If a parent had more than one child in this age group then the researcher randomly chose one child for the parent to fill out the survey for.

The sample size was to be a minimum of 200 parents based on a power analysis calculated using Statistical Power Analysis (Borenstein & Cohen, 1990). Power analysis for correlation procedures with a small effect (0.20), two tailed alpha with a decision level of 0.05 and a power of 0.80 showed an adequate sample to be 200 participants. An 80% power level is desired to decrease Type II errors. The sample for this study was obtained from 3 of 13 WIC Clinics in Las Vegas, NV. Access to parents and children at these WIC clinics and data from the chart regarding the child's weight and height was approved by Jean Toscano, R.D. and manager of these clinics (See Appendix D). Approval for access to these clinics was obtained from Nevada State WIC, Nola Haynes, R.D. and Dennis White, WIC Program Manager (See Appendix D).

Measurement Strategies

The method of measurement used in this study was the Parental Perceptions Nutrition Survey (PPNS) (See Appendix C). It has primarily closed-ended, multiple choice questions. The items also provided the opportunity for the parent to add other responses in addition to the ones provided. There were simple closed-ended questions such as age, education, and ethnic background. The PPNS is an expansion of the tool developed by Sue Myers, MSN, RN, C, PNP and Zulma Vargas, MPH, RD and used in their study (Myers and Vargas, 2000). They developed the tool based on their study objectives. Myers and Vargas were employees in the Arlington, Virginia, federally-
funded nutrition program for women, infants and children (WIC) and Child Health Clinic where they had a 21% obesity rate in their pediatric population. They and other staff members believed that their intervention techniques with parents of obese children were not showing the outcomes they expected. They attributed this, in part, to parents who denied that their child had a weight problem, whether it be from cultural beliefs or otherwise. Therefore the tool was developed in an attempt to understand more about parental beliefs and perceptions of childhood obesity. It was used in their study to obtain parental perceptions of obese children (greater than 95th percentile for height and weight) only. They performed a pilot study and made a few changes in the delivery of the survey. Staff members administered the questionnaire to the parents by reading the question and then checking the response closest to what the parent stated or else wrote in the response if it was not one on the list. Myers and Vargas (2000) did not discuss the level of measurement they obtained. They provided the questionnaire in their article and from assessing the questionnaire, it could be determined that nominal and interval data were obtained. No reliability or validity assessments were discussed by Myers and Vargas (2000).

The present study stems from Myers and Vargas (2000) and their tool provides a base for use in this study. Because of the weakness of the tool it has been expanded to incorporate Pender’s HPM. Permission has been obtained from S. Myers to alter the survey as needed to fit the needs of the present study (See Appendix D). A similar target population was used in this study, therefore the language used in the tool was the same to allow readability and clarity for the participants. The level of measurement in the present study using this tool was nominal, ordinal, and interval data. The Parental
Perception Nutrition Survey (PPNS) was assessed by graduate students, who were completing 9 credits of scientific inquiry course work, for readability, clarity, and appropriate incorporation of Pender’s HPM. The tool was also assessed by WIC dieticians for readability and clarity. Feedback was given for minor changes to be made. The PPNS and the informed consent letter were developed in English. They were translated into Spanish by a UNLV student from the English As A Second Language Department (See Appendix C). The translation was checked by a WIC staff member who was fluent in Spanish to ensure accuracy of the translation. This was done to ensure that the WIC population completing the survey was able to understand it.

Human Subjects’ Rights

Prior to data collection, approval from the University of Nevada, Las Vegas (UNLV) Human Subjects’ Rights Committees was sought to ensure that human rights were recognized and protected (Appendix D). This includes their right to self-determination, privacy, anonymity and confidentiality, fair treatment, and protection from discomfort and harm (Burns & Grove, 1997). The proposal for the present study was also approved by the researcher’s Thesis Committee as well as the Department of Nursing’s Human Subjects’ Rights Committee to ensure efficacy and validity of the proposed study.

The present study examined parental perceptions of their child’s weight status, looking specifically at their child aged 2-5 years old. This study targeted the parent although the child was indirectly involved with the use of the child’s height and weight data. The present study presented little risk to the parent or the child. The parents had
the opportunity to read the consent letter explaining the study. They had the opportunity to decline participation without any adverse consequences. The parent who then filled out the survey after reading the consent letter indicated their informed consent, for themselves and their child, to participate in the study.

Children are seen as a group of persons with diminished autonomy, and are more vulnerable. Because the children in this study are under the age of 7 years they are not seen as competent to provide consent to participate in the study. Consent was obtained only from the parent who brought the child to WIC. The child’s weight and height had already been taken in their last certification as a standard part of the WIC’s nutritional assessment, therefore participation in this study caused no additional physical intervention. Complete confidentiality was provided for both the parent and the child in this study. There was also little risk identified for the WIC agency. The findings of the study are intended to provide WIC health care staff, as well as other health care providers with more insight into how parent’s perceive their child’s weight.

WIC Clinic Procedures

Prior to data collection, the researcher spent time in each of the three clinics to get familiar with the routines of the clinics and the staff. The clinics “Certification Process” is done when clients enter into the WIC program and then they are reevaluated every six months until they no longer qualify for the program. This process for certification of children requires that their parent or legal guardian fill out questionnaires about their dietary intake. The child’s height and weight are also taken upon entrance in the program and reevaluated every six months. The required forms are then reviewed by
either the dietician or the certifier to ensure that the forms are completed in full and to clarify any information provided. The certifiers also take the child’s weight (lbs), height (inches) and record them on the child’s chart. The height and weight data are plotted on the National Center for Health Statistics (NCHS) Growth Charts to identify if the child is at risk due to their weight. All forms at WIC clinics were available in both English and Spanish.

Certifiers are trained interviewers and are certified by Nevada State WIC to work with clients and to provide nutritional counseling. The certifiers have their charts checked monthly by the dietician in the clinic and are allowed only a 20% error rate. They also have quarterly meetings with the dieticians to update them on their performance. Nevada State WIC requires yearly training sessions for all certifiers to maintain skills and knowledge. The certifiers are usually the ones to review the forms and do the nutritional counseling, except high risk cases which are referred to the dietician.

Certifiers were observed by the researcher, taking heights and weights of children to ensure consistency and accuracy of the measurements. The certifiers are required to follow WIC protocols when doing height and weight measurements which specifies that all children must have shoes removed and wear only light clothing for all height and weight measurements. The scales used for measuring weight in pounds is the same in all the clinics which are Balance Beam Scales made by Detecto Scale Companies. The Balance Beam Scales are calibrated every two months. The wooden wall-mounted measuring boards are used to measure height in inches with heels to the wall and the measurement taken from the top of the head with the child standing.
straight. The wall-mounted measuring boards are the same in all the clinics and are made by Shore Productions.

As part of a requirement of WIC, parents attend a nutritional class once within the six month period before they were re-certified. Attendance at the class is required in order to receive the food vouchers. The classes are divided into groups for various ages: Infant I, classes for parents with children from birth to six months; Infant II, classes for parents with children from six months to one year; and Kids Club, for parents with children from one to five years. Parents with more than one child in the program attend class according to the age of their youngest child, although they receive food vouchers for all the children in the program after attending the class. The researcher and WIC staff determined that class days provided an ideal opportunity to obtain parents for this study without extra stress on WIC staff or interruption of the fast pace of the WIC clinics.

Pilot Study

A pilot study was conducted at the busiest of the three clinics to determine the readability and clarity of the survey for both the English and Spanish population participating in WIC. The pilot study was also useful to determine the most efficient way to distribute the surveys to parents without causing confusion or disruption of the regular process at these WIC clinics. Ten English and ten Spanish surveys were obtained from parents attending Kids Club classes. A minor adjustment of wording to question #5 on the PPNS was made on the Spanish survey because parents seemed to interpret it as their relationship with the child rather than their relationship to the child.
Another adjustment was made on how the survey was distributed to the parents so the parents were clear as to which child they would fill out the survey for, if they had more than one child between the age of 2-5 years.

Children who were classified as overweight and therefore, high risk were then seen by the dietician for a number of one-on-one sessions. During these one-on-one sessions with the dietician, these parents were not required to also attend group classes. In order to include these children in this study, the dieticians were willing to distribute the Informed Consent letter and the PPNS to parents in the one-on-one sessions for the high risk, overweight child.

Data Collection

Once the pilot study was completed, actual data collection ran for the whole month of June 2001 with a sample of 280 parents obtained. Each clinic had classes on a different day of the week and each class day had an English and a Spanish version of each class (ie. Infant I, Infant II, and Kids Club). Prior to each class, the researcher reviewed the charts of the clients scheduled to attend class for that day. As stated above, the parent would attend class according to their youngest child, but all of the family’s charts are kept together because the parent will be receiving food vouchers for all their children after class. The majority of the sample for this study was obtained from Kids Club classes due to the age group. In addition, some parents attending Infant I or II had older children that qualified for participation in the study. If a child was between the age of 2-5 years old and the height/weight data was taken within the past two months, the researcher wrote down the child’s age, height and weight from the last
certification on the bottom of the second page of the PPNS in pencil. The survey and consent letter were then placed in their chart. If there was more than one child per family between the age of 2-5 years old, the researcher randomly chose one child and placed the survey in that child’s chart. To avoid confusion for the parent, the child’s first name was written in pencil at the top of the page of the PPNS. Therefore, the parent would know which child to fill the survey out for. This was done due to discrepancies found during the pilot study where ages weren’t matching or parents were listing more than one child for question #1 on the PPNS.

Once the screening process above was completed, parents were approached as they signed in at the clinic to attend class. The researcher introduced herself, explained that she was conducting a study at WIC. Parents were instructed to read the Informed Consent Letter and then fill out the PPNS for the child whose name was at the top of the page if they were willing to participate. The researcher notified parents that she would be present at all times if they had any questions. WIC staff provided translation for the researcher to parents who could not understand English. The parents usually had time to read the consent letter and fill out the survey prior to going into the classroom for class or if not they were able to complete it after the class was over. The researcher collected the completed PPNS from the parents and they kept the Informed Consent Letter for their own information. Once collected, the PPNS was seen only by the researcher and kept in a secure file box.

The researcher gave the dieticians the Informed Consent letter and the PPNS in both English and Spanish. They were instructed to distribute the survey prior to doing any nutritional teaching. The dieticians took the child’s height and weight during each
session with the high risk children. They wrote the height and weight data on the
bottom of the second page of the PPNS along with the child’s exact age. The dieticians
were given the surveys on colored paper in order to distinguish them from the others.
The dieticians kept the completed surveys in a secure drawer in their office and the
surveys were collected each week by the researcher. Once collected by the researcher,
the surveys were kept in a secure file box to ensure confidentiality.
CHAPTER 5

FINDINGS

Introduction

The chapter contains a profile of the sample, discussion of descriptive statistics and frequencies, as well as statistical analysis of the research questions.

Profile of Sample

A total of 280 WIC parents agreed to participate in this study. Five of the surveys were discarded due to incomplete data giving a total of 275 usable data sets. Two of the surveys discarded were in English and three were in Spanish. The high participation rate is most likely due to the fact that the sample population was easily accessible and the parents were already coming to the WIC clinics for their nutritional class. The majority of parents were able to fill out the survey while they waited for their class to begin therefore it was not an inconvenience to them. In addition, parents were more willing to participate in the study once they were assured that there were no further obligations after filling out the survey, and parents were interested in the study because they cared about their children. Interest for participation was high. On one occasion, a mother inquired as to why she did not get a survey for her child. It was due to the fact that the child’s height/weight data were too old and the mother requested his
height/weight be taken so that she could fill out the survey. However, there were two or three parents who declined participation due to illiteracy.

**Age**

The mean age of the children in the study was 39 months with ages ranging from 19-60 months. The sample was evenly dispersed across the age range. The mean age was similar between ethnic groups with the Hispanic children having a mean age of 39 months and the non-Hispanic children having a mean age of 37 months. The age of the adults ranged from 19-60 years, with a mean age of 29.21. There was no difference between the mean age of the adults by ethnic groups.

**Ethnicity**

The ethnicity of the sample was primarily Hispanic which included Mexican American (79.2%, n=215). Twenty percent of the sample was made up of all the other ethnic groups combined (non-Hispanic) which included Caucasian, African American, biracial, and other. Of the Hispanic and Mexican American participants, 76.3% (n=164) filled out the form in Spanish and 23.7% (n=51) filled out the form in English. In talking with the parents, many of them were verbally bilingual, but some of the younger mothers were more comfortable reading and writing in English because they were schooled in the United States.

**Education**

Education of the parent ranged from 1 year to 17 years with the mean of 10.27 years. Twenty-seven percent (n=75) of parents had received a 12th grade education (high school), and 14.3% (n=39) had education past the twelfth grade. Comparing the parental education level according to the ethnicity showed some differences. The
Hispanic group had a lower mean education level (9.85) than the non-Hispanic group (11.88) and only 24.2% (n=52) of Hispanics achieved a grade 12 education versus 38.2% (n=21) in the non-Hispanic group. Eleven percent (n=23) of the Hispanic group pursued further education post-highschool compared to 29% (n=16) in the other group.

**Gender**

Males were dominant in the child sample as a whole with 54.2% (n=149) compared with 45.8% (n=126) of females. It was interesting to note that in the Hispanic group males were also dominant with 55.3% (n=119) and only 44.7% (n=96) of females, but the male to female distribution in the non-Hispanic group was nearly equal with slightly more females than males (50.9% and 49.1%, respectively).

**High Risk Program**

In the whole sample, 40 children (14.5%) were being seen by the dietician due to their weight being classified as high risk, but this does not mean that the other 85.5% of the children involved in the study were normal weight. Some of the children in the high risk group had BMI percentiles in the normal range, perhaps due to changes already made by the parents under the advice of the dietician and therefore the child’s growth moved into the normal range. Comparing genders in the high risk program found more males (15.3%, n=23) than females (13.5%, n=17). There was also a difference between the ethnic groups with more high risk children in the Hispanic group compared to the non-Hispanic group (14.9% [n=32] vs 10.9% [n=6]).

**BMI Percentile**

The BMI percentile is the most useful piece of data for children in determining whether their growth is in a normal range for age. For this study, the BMI percentiles
ranged from 1-100%. This is because the CDC growth charts only have graphed lines from the 5th percentile to the 95th percentile. Therefore, the researcher placed individuals below the 5th percentile together at the lowest possible percentile (1%) and individuals above the 95th percentile were grouped together at the highest possible percentile (100%). This was done since it was difficult to accurately estimate a percentile below the 5th or above the 95th when there was no graphed line to follow.

The mean BMI percentile for the total sample was 57.2 with 10.6% (n=29) of children having a BMI greater than the 95th percentile. Table 1 (See Appendix A) shows the comparisons of mean BMI percentiles, as well as comparisons of the number of children whose BMI percentile was above the 95th percentile and below the 5th percentile looking specifically at gender and ethnicity.

**General Overview of Statistics**

For the entire sample, it was most often the mothers who filled out the survey (86.9%, n=239), compared to fathers (8%, n=22), grandmothers (0.4%, n=1), and foster parents (0.4%, n=1). Interestingly, when genders were compared, fathers filled out the survey for their sons more often (9.4%, n=14) than for their daughters (6.3%, n=8).

In evaluating parents perception of their child’s weight as well as their own weight some differences were noted. Overall, 10.5% (n=29) of parents thought their child was underweight, 80.4% (n=221) of parents thought their child had a normal weight, and 6.2% (n=17) of parents thought their child was overweight. Table 2 (See Appendix A) demonstrates the differences between parents perception of their child’s weight according to ethnicity and gender. Very few parents perceived themselves to be underweight (5.5%, n=15) with the majority perceiving themselves to be normal weight.
followed closely by overweight (42.9%, n=118). The ethnic differences were primarily in the normal weight and overweight categories where 49.3% (n=106) of the Hispanic parents thought they were normal weight and 38.2% (n=21) of the parents in the non-Hispanic group thought that they were normal weight. A smaller percentage of parents (40.9%, n=88) in the Hispanic group thought they were overweight compared to 52.7% (n=29) parents in the non-Hispanic group.

Overall most parents stated that their child ate fast foods one time per week (52.7%) and 16.4% of parents stated that their child never ate fast foods. The parent group was similar with 48% of parents stating that they only ate fast foods one time per week and 19.6% of parents stating they never ate fast foods. Eating fast foods five times per week was identified as the highest number of times identified for both the child and parent (0.7% for the children and 1.8% for the parents, respectively). Table 3 (See Appendix A) shows the differences in the number of times per week that the child and parent ate fast foods according to ethnicity.

There was some interesting differences between ethnic groups noted in the parental responses for the questions regarding health professionals, family and friends comments regarding their child's weight. Table 4 (See Appendix A) shows the most dramatic difference in the Hispanic parents identifying that family and friends more often feel that their children are underweight rather than overweight. The comments by the Hispanic family and friends have values that are three times higher compared to comments of family and friends in the non-Hispanic group in the underweight category. It can be noted in Table 1 that the BMI data showed the opposite to be true. It is also interesting to note the difference in the comments made by nurse/doctor in Table 4. In
the overweight category, the non-Hispanic group have over double the percent of comments by a nurse or doctor compared to the Hispanic group (18.2% vs 8.4%).

Parents were asked the question, “What problems do you think an overweight child might have?” When compared by ethnicity, the responses were similar as shown in Table 5 (Appendix A). Parents were also given the opportunity to describe other problems that were not listed. Although there were very few comments, a summary of the responses are as follows: no problems (2.3%, n=6), breathing problems (1.6%, n=4), diabetes (0.8%, n=2), self-esteem problems (1.2%, n=3), depression (0.4%, n=1), hatred towards mother (0.4%, n=1), and difficulty fitting into/buying clothes (0.8%, n=2).

A comparison of gender and ethnicity was done to examine parental responses for measures initiated by parents to control their child’s weight as well as parents identification of what made it difficult to control what their child ate (see Table 6 and 7, respectively, Appendix A). Parents were given the opportunity again to describe other responses besides the ones listed for these two questions. The majority of comments in response to the question of “What have you tried to control your child’s weight?” dealt mainly with proper nutrition (2.8%, n=7) and activity of their child (2.0%, n=5), as well monitoring the amount of food that the child eats (0.8%, n=2). The comments in response to the question “What has made it difficult to control what your child eats?” are diverse including not giving into the child’s every want (1.2%, n=3), everyone in the house is overweight (0.4%, n=1), Grandma and Grandpa spoil the child (0.4%, n=1), the child likes sweets (0.4%, n=1), and child is in daycare (0.4%, n=1).

The final question on the PPNS asked parents how they felt about their child’s weight. No parent identified their child as overweight, and only one parent (0.4%) in
the overall sample identified their child as very overweight. Parents were able to add comments other than the ones listed. It was interesting to note that the all comments from the Hispanic group were parents stating that they felt their child was underweight (3.4%, n=7) and the only two parental comments from the non-Hispanic group were regarding a need for more food through food stamps (1.8%) and child’s weight will be fine (1.8%). Table 8 (Appendix A) summarizes the parents responses which are compared by ethnicity.

Research Question Analysis

Each research question is discussed in regards to the statistical test performed and the results. Research question # 1, 2, 5, 6, 7, and 8 were analyzed using a Chi-square. Significance was obtained with both the Pearson’s Chi-square and Cramer’s V, but Pearson’s Chi-square is truly a ranking score and this type of data would violate the test. The assumptions are better met for the Cramer’s V and therefore it is the statistic that will be reported.

1. What is the relationship between the parental perception of the child’s weight on question #7 on the PPNS and the BMI percentile of the child?

A significant relationship was found with Cramer’s V= 0.327, p= 0.000 (n=267) between the parental perception of the child’s weight and the BMI percentile of the child. This implies that most parents perceived their child’s weight accurately (ie. underweight when they were underweight, normal weight when they were normal weight, and overweight when they were overweight according the BMI percentile). Comparisons of the ethnic groups had similar results. The Hispanic group (n=207) had
a Cramer's V = 0.284, p = 0.000 and contained one outlier where the parent perceived the child to be underweight when the child was actually overweight. The non-Hispanic group (n = 55) had a Cramer's V = 0.561, p = 0.000 with very few outliers. No parent, in either group, perceived their child to be overweight when they were actually underweight. The findings support an accurate relationship between the parent's perception of their child's weight and the child's calculated BMI.

2. What is the relationship between the ethnic background identified on the PPNS and the accuracy of the parental perception of the child's weight on question #7 on the PPNS?

The accuracy of parental perception was broken down to 3 levels; i) the parent perceives the child's weight accurately, ii) the parent perceives the child's weight as greater than the child's actual BMI percentile, and iii) the parent perceives the child's weight as less than the child's actual BMI percentile. The ethnic groups were divided into two groups with Hispanics (n = 207) and non-Hispanics (n = 55). Most parents perceived their child's weight accurately (Hispanic group = 75.8% and non-Hispanic group = 86.3%), but more Hispanic parents perceived their child's weight to be less than the child's actual BMI percentile (17.4%) compared to non-Hispanic parents (7.3%). Parents in the non-Hispanic group more often perceived their child's weight to be greater than their actual BMI percentile (9.1%) compared to parents in the Hispanic group (6.8%). Table 9 (Appendix I) shows a breakdown of percentages of the accurate, and inaccurate perceptions of the parents according to ethnicity. Despite the percentage data above, statistical significance was not found between the ethnicity and the accurate
parental perception of the child’s weight using Chi-square Crosstabs calculations
(Cramer’s V = 0.117, p = 0.167).

3. What is the relationship between the number of times the child eats fast foods and the
BMI percentile of the child?

Some individuals identified that their child only ate fast foods once or twice a
month, therefore all individuals who ate fast foods one time or less per week were
grouped together as once per week. Therefore the range for children eating fast food
was zero to five times per week (See Table 3, Appendix A). A significant relationship
was not found between the number of times a child ate fast foods and the BMI
percentile of the child using a One-way ANOVA (F = 0.127, p = 0.881). Comparison of
ethnicity had no bearing on the significance in this relationship. The Hispanic group had
a result of F = 0.080, p = 0.923 and the non-Hispanic group had a result of F = 0.698,
p = 0.502 using a One-way ANOVA. Significance was not obtained when the age of the
child was adjusted to look at only children three years of age and older (F = 0.372,
p = 0.690) since they would be more likely to have a fast food diet than an infant or a
very young child.

4. What is the relationship between the number of times the parent eats fast foods and
the parent’s perception of their own weight?

Individuals in the parent sample were grouped the same as the children discussed
above. No significant relationship was found between the number of times that a parent
ate fast foods and the perception of their own weight being underweight, normal weight
and overweight (F=1.042, p=0.354). Comparison of ethnicity for this relationship had no bearing on the significance obtained. The Hispanic group had a result of F=1.610, p=0.203 and the non-Hispanic group had a result of F=0.690, p=0.056.

5. What demographic data (age of the parent and education) are related to accurate parental perception of the child’s weight?

The accuracy of parental perception was broken down to 3 levels; i) the parent perceives the child’s weight accurately, ii) the parent perceives the child’s weight as greater than the child’s actual BMI percentile, and iii) the parent perceives the child’s weight as less than the child’s actual BMI percentile. The ages of the parents ranged from 19 to 48 years with the one outlier with an age of 60 years who was excluded from this test. The age of the parent had no significance in relation to the accuracy of the parental perception of the child’s weight (Cramer’s V=0.130, p=0.064). Education levels were grouped with those who had less than 8th grade, 8-11th grade, 12th grade, and greater than 12th grade to determine if the parental education had any relationship to the accuracy of the parent’s perception of the child’s weight. No significance was obtained with Cramer’s V=0.123, p=0.302. Table 9 (See Appendix A) shows a breakdown of percentages of the accurate, and inaccurate perceptions of the parents according to education and age.

6. What is the relationship between the comment of a health professional as reflected by question #11 on the PPNS and the parental perception of the child’s weight?

Significance was found between the comment of a health professional and the
parents perception of the child’s weight, Cramér’s V = 0.457, p = 0.000 (n = 238). There were few outliers with only one parent perceiving their child as underweight while the health professional perceived the child to be overweight. Significance was maintained when this relationship was analyzed according to ethnicity. Both groups had few outliers, but the Hispanic group (n = 182) had the one parent who perceived that the child was underweight when the health professional perceived the child as overweight. Cramér’s V = 0.445, p = 0.000 for the Hispanic group, and Cramér’s V = 0.457, p = 0.000 for the non-Hispanic group (n = 52) which were very similar.

7. What is the relationship between the comments of relatives as reflected by question #12 on the PPNS and parental perception of the child’s weight?

Cramér’s V = 0.540, p = 0.000 showed significance between the comments of relatives and the parental perception of the child’s weight (n = 213). There were few outliers and no parent perceived their child to be overweight and when family members perceived them to be underweight or vice versa. There was very little difference between the findings by ethnic group. The Hispanic group showed significance with Cramér’s V = 0.546, p = 0.000 (n = 171) and the non-Hispanic group showed significance with Cramér’s V = 0.583, p = 0.000 (n = 38).

8. What is the relationship between the comments of friends as reflected by question #13 on the PPNS and the parental perception of the child’s weight?

A significant relationship was found between the comments of friends and the parental perception of the child’s weight, Cramér’s V = 0.499, p = 0.000 (n = 210). There
were very few outliers and no parent perceived their child to be overweight when friends perceived them to be underweight and vice versa. When ethnic groups were compared, friends and parents in the Hispanic group (n=167) more often perceived the child as underweight or normal weight than the friends and parents in the non-Hispanic group (n=39) who perceived the child more often as normal weight or overweight, although both groups maintained statistical significance (Cramer's V=0.530, p=0.000 and Cramer's V=0.332, p=0.000, respectively).

Reliability and Validity

The PPNS was developed for this study utilizing questions from the tool used in Myer and Vargas (2000). Reliability and validity of the tool used in Myers and Vargas (2000) was not identified. This study was not testing the tool, but analysis was done to identify how well the tool worked for this sample. Factor analysis was run for the questions taken from Myers and Vargas' tool (2000) due to sufficient number of participants. Overall the items loaded on the expected factor. Factor 1 loaded in relation to question #15 on the PPNS which was related to measures by parents to control their child's weight (Eigenvalue=3.714). Factor 2 loaded in relation to question #14 on the PPNS which was related to problems an overweight child may have (Eigenvalue=2.474) and factor 3 loaded in relation to question #16 on the PPNS which was related to problems parents had in controlling what their child ate (Eigenvalue=1.568). Overall the reliability for these items is low (Cronbach's Alpha=0.6110) which could be due to yes/no answer for these multiple items as well as the two languages used for this study. Some variation in the Cronbach's Alpha was noted when
the language of the survey was selected with the English survey having a lower score (0.5580) compared to the Spanish survey (0.6397). This may be related to some of the participants whose first language is not English. Reliability was improved for other items in the PPNS that measured the perceptions of the parent for question #7, 8, 11, 12, 13 with Cronbach’s Alpha= 0.7764 showing that the parent’s were answering the questions consistently.
CHAPTER 6

DISCUSSION

Introduction

This chapter contains the discussion of major findings according to the descriptive statistics and the findings of the research questions related to Pender’s HPM. Limitations of the study are discussed as well as nursing implications and recommendations for further research. A summary of the research study is also presented.

Presentation of Major Findings

The descriptive statistics and frequency data provided some interesting findings. The sample population consisted mainly of families from a Hispanic background.

Census data 2000 shows that the population of Clark County has a 22% Hispanic/Latino population, 60.2% Caucasian population, and 8.8% African American/Black population (U.S. Census Bureau, Census 2000 Redistricting Data). Annual data received from the WIC manager, broken down by ethnicity for the three WIC clinics used, shows the majority of WIC clients to be of Hispanic background (73%), followed by Caucasian (14%), black (11%), American Indian/Alaskan Native (1%), Asian/Pacific Islander
(1%), and South East Asian (1%). These data are consistent with the ethnic variation of participants obtained for this study.

The overall sample of children (n= 275) had an obesity rate of 10.6% which means these children had a BMI percentile greater than the 95th percentile. The target goal for Healthy People 2010 is to reduce the number of obese children (aged 6-11 years) to 5% (U.S. Department of Health and Human Services, 2000). Even though the children in this study were only 2-5 years old, this is still a concern as the percentage for this sample is double the Healthy People 2010 goal. Several studies done with younger children show the effects of obesity can start at age five or younger (Birch & Fisher, 2000, Krahnowever & Lipps, 2001, Stice, et al., 1999, Strauss & Knight, 1999, & Whittaker, et al., 1997).

It is interesting to note that the Hispanic culture appears to perceive that their children are underweight or not obese more often than the other cultures in this study. This cultural belief was displayed several times with the data from the PPNS. Table 1 demonstrated that 11.2% of Hispanic children had a BMI >95th percentile and only 6% had a BMI <5th percentile, but Table 2 shows that only 5.6% of Hispanic parents perceived their child to be overweight while 11.6% of Hispanic parents perceived their child to be underweight (See Appendix A). Table 4 also shows that family and friends, who are most likely also Hispanic, perceive the children to be underweight (16.3% for both family and friends) more often than overweight (5.1% of family and 4.2% of friends). Comments from question #17 on the PPNS regarding how Hispanic parents feel about their child’s weight were primarily focused on their child being underweight. The researcher believes that evidence provided here could be related to findings in
Baughcum, Burklow, Deeks, Powers and Whitaker (1998) where mothers believed that it was better to have a heavier child because it was the best marker of the child’s health and successful parenting.

In relation to Pender’s HPM, the personal sociocultural factor of ethnicity did show a difference in how parents perceived their child’s weight, but gender, which is a personal biologic factor, was not related to how parents perceived their child’s weight (See Table 2, Appendix A) (Pender, 1996). The lack of significance in relation to age may be due to the young age of the children in this study. The data in Table 4 provides support for Pender’s HPM variables of interpersonal influences which states that individuals are affected by the behaviors, beliefs, and attitudes of others such as family, peers, or health care professionals, and some cultures place more emphasis on interpersonal influences than others (Pender, 1996). Family and friends in the Hispanic group consistently perceived the child as being underweight more often than overweight compared to family and friends in the non-Hispanic group where the opposite was noted. It appears that the data from the family and friends in the Hispanic culture are more consistent and perhaps Hispanic parents in this study place more emphasis on the opinions of their family and friends than the opinion of health professionals. There is a large difference in the percent of comments by a nurse or doctor regarding the child being overweight (8.4% for the Hispanic group, 18.2% for the non-Hispanic group). The difference in the data could be biased because all of these ratings are coming from the parent and not the health professional.

Some comparisons of these results can be made with the results of Myers and Vargas (2000). Myers and Vargas (2000) had a Hispanic population of 95% and this
study had a similarly high population of Hispanics (80.2%). Nearly 78% of parents in Myers and Vargas (2000) answered that an overweight child may have heart problems when older compared to 69.8% of parents in this study. Overwhelming differences were noted in the beliefs of the parents regarding an overweight child between the two studies. Eleven percent of parents believed that a child may have difficulty playing and getting enough exercise in Myers and Vargas (2000) compared with 60% in this research study, 2.7% of parents in Myers and Vargas (2000) believed that an obese child may not feel good about themselves compared to 54.9% in this research study, and 1.1% of parents in Myers and Vargas (2000) responded an obese child may have difficulty making friends in school compared to 32.4% of parents in this research study. The differences could be due to improved or increasing education to parents regarding the effects of obesity in children.

Thirty-seven percent of parents in Myers and Vargas (2000) stated that they had done nothing to control their child’s weight, and 48% stated that they tried to give their child fewer snacks that were high in fat and sugar compared to parents in this research study where 69% of parents stated that they had done nothing to control the child’s weight because he/she was not overweight, and only 18.9% of parents tried to give fewer snacks that were high in fat and sugar. Only 5% of parents in Myers and Vargas (2000) stated that they would increase the child’s activity in order to control their child’s weight compared to 19.6% of parents in this study. Lastly, Myers and Vargas (2000) found that 53% of parents stated that they had no difficulty controlling what the child ate versus 77% of parents in this study. Thirty percent of parents in Myers and Vargas (2000) stated their child would cry if not given what they wanted compared to 12% of
parents in this study. There could be multiple reasons for the variations in these results. WIC staff, in Myers and Vargas (2000), read the survey questions to the parentss and marked down their answers whereas parents in this study completed the survey independently with the choice of either an English or Spanish survey. They could be due to different beliefs in a different part of the country. Another factor for consideration is Myers and Vargas (2000) sampled parents of children aged 2-5 years old who were greater than the 95th percentile for height and weight compared to this study where no group was targeted and all parents with a child between the age of 2-5 years were able to participate.

Discussion of Research Question Analysis

The significant relationship between the parental perception of the child’s weight and the child’s BMI percentile in research question #1 shows that parents are, for the most part, perceiving their child’s weight accurately. In relation to Pender’s HPM, this question was measuring the perceived health status of the child by the parent (Pender, 1996). Although most parents are perceiving their child’s weight accurately and therefore likely perceive that their child is healthy, the parents who are not perceiving their child’s weight accurately are the ones to be concerned about. Eleven percent of Hispanic children and 9.1% of children in the non-Hispanic group are overweight according to their BMI percentile and as discussed previously, the goal of Healthy People 2010 is to bring that number down to 5% (U.S. Department of Health and Human Services, 2000). This study did not explore family history for the presence of chronic illnesses such as hypertension, diabetes and coronary artery disease which are strongly linked to obesity to see if these factors would have an effect on how the parent
perceived the child's weight (the perceived health status) as was done in Young-Hyman, et al. (2000).

Table 3 shows that more Hispanic parents perceive their child to be underweight (11.6%) rather than overweight (5.6%) compared to parents in the non-Hispanic group who perceive their child to be overweight more often (9.1%) than underweight (7.3%) (See Appendix A). Regardless of these percentages, research question #2 identified no significant relationship between ethnic background and the accuracy of the parental perception of the child's weight. Research question #2 examines two variables of Pender’s HPM including sociocultural factor of ethnicity which is unalterable and psychological factor of perceived health status (Pender, 1996). The latter variable may be altered, but is often influenced by interpersonal factors like family and peers which was discussed previously.

The young age of the children involved in this study may be one of the reasons that there was no significant relationship found between the number of times the child ate fast foods and the BMI percentile of the child in research question #3. No significance was found in the relationship between the number of times the parent ate fast foods and their perception of their own weight for research question #4. The number of times that parents identified that their child and themselves ate fast food per week was lower than the researcher had expected (See Table 3, Appendix A). The relatively low cost and convenience of fast food appeals to American society. The researcher has to assume that the parents answered the questions truthfully, but parents may not have included other fast food sources like quick meals or fast foods that can be purchased at a grocery store, or fast food from street food vendors. The question was
worded with only commercial fast food restaurants listed. A discussion with a manager of a grocery store, which serves WIC clients, states he has often witnessed WIC clients purchasing the food from the vouchers and then purchasing many "junk-food" items with their own money.

Research questions #3 and #4 were measuring the concept of prior related behaviors from Pender's HPM which predicts that past behaviors have an effect on current attempts at health promoting behaviors due to habit formation (Pender, 1996). The lack of significance found with these research questions does not provide support for this concept in this sample. The fast pace of American society which consumes a large amount of fast food suggests a relationship would exist with the weight of the child and the perceived weight of the parent. Perhaps this group does consume less fast food due to their lower income status and their need for WIC services because of that fact.

Research question #5 examined the relationship between the demographic data (age of the parent and the education) and the accurate perception of the child's weight. The range of the parents' ages were not unexpected (19-48 years, mean age= 29 years) with only one outlier at 60 years of age. This outlier was a grandmother who brought the child to the WIC clinic. The lack of significance is a good indication that parents are aware of their child's weight. A younger and perhaps a less mature group of parents may not have had the same results. This awareness may be due to teaching done by WIC staff, other health professionals educating parents or media exposure regarding the need for children to be at a healthy weight.
The education level of the parent also had no significance to the accuracy of the parental perception of the child’s weight. The level of education of this sample had a mean of 10 years and 27.3% received grade 12 education which is comparable to the national average. The U.S Census Bureau data regarding the education level of individuals in the United States older than age 25 years shows that 6.9% have an education <9th grade, 11.5% have an education 9th-12th grade, and 29.5% have a highschool equivalency (U.S. Census Bureau American Fact Finder (online), 2000). Although the overall sample had an education level comparable to the national average, the Hispanic group was shown to have a lower mean level of education (9.85 years) compared to the non-Hispanic group (11.88 years) with fewer parents in the Hispanic group finishing 12th grade (24.2% vs 38.2%) or seeking higher education (11% vs 29%). Baughcum, Chamberlin, Deeks, Powers, and Whitaker (2000) examined maternal perceptions of overweight preschool children (n=99) and found that low maternal education was the only factor associated with a failure to accurately perceive the child as overweight.

Age and education are considered personal factors in Pender’s HPM which may influence behaviors and assist in predicting health-promoting practices (Pender, 1996). A personal factor, such as age, cannot be altered and is seldom incorporated into health-behavior change interventions, but education is a factor that could be very significant in health-behavior changes that health professionals may suggest (Pender, 1996). The education level of the parents in this sample may attest for the lack of significance in this relationship because parents may be more aware and educated about the need for their child to be at a healthy weight.
Research questions #6, 7, and 8 look at the relationship between comments from health professionals, family and friends and the parental perception of their child’s weight. Significance was found with all three questions even when comparisons were made according to ethnicity. It must be kept in mind that the conclusions for these results of the perceptions for comparison came from the parent and not a health professional, family member or friend, therefore they may be biased. The significance implies that the parents perceive the child’s weight similar to how health professionals, family and friends perceive the child’s weight. This is expected with family and friends due to interpersonal influences and cultural beliefs where these individuals who are close to the parent would likely have similar ideals and beliefs (Pender, 1996). Pender (1996) states that health professionals can be influential in guiding parents in regards to the expected social norms of how to raise their children to be healthy and follow health promoting behaviors.

Pender’s Health Promotion Model Findings

Pender’s HPM has additional concepts that were measured in this study. These concepts include activity-related affect, situational influences, and immediate competing demands and preferences (Pender, 1996). Activity-related affect is a concept dealing with the subjective feelings that an individual has prior to, during, or following a health promoting behavior. This feeling is also described as a gut-level response (Pender, 1996). This concept was measured by asking parents how they felt about their child’s weight in hopes to determine the emotional state of parents. Parents experience many dilemmas regarding the weight of their children as discussed in the Newsweek article by Begley (2000).
provide nutritional teaching and where clients should feel comfortable in expressing their concerns about their child’s weight. The majority of parents felt that their child’s weight was fine (84.7%, n=233) which is expected because a majority of the children had a BMI in the normal range for age, but very few parents chose other options that were available to them such as they feel that their child is a little overweight (6.5%, n=18), they feel that their child is very overweight (0.4%, n=1), they feel helpless about their child’s weight (0.7%, n=2), or they want their child to lose weight (1.8%, n=5). These data are important for health professionals to consider because perhaps these parents who have an overweight child are in denial. They ignore that gut level response to do something about their child’s weight because they don’t want their child to feel that the people they trust and love have turned against them similar to experiences shared in Begley (2000).

Situational influences in the HPM are described as direct and indirect influences on health promoting behavior or as an environment full of cues to action (1996). This concept was measured by asking parents “what problems do you think an overweight child might have?” with several options to chose from. Parents seemed to be aware of the risks that may be present for an overweight child because 69.8% of parents felt an overweight child may have heart problems when older, 60% felt an overweight child may have difficulty playing and getting enough exercise, and 54.9% of parents believe that an overweight child may not feel good about themselves. Therefore these parents seem to be aware of the cues in society and in the media where health care professionals are trying to educate parents about risk factors of obesity. Only 32.4% felt that an
overweight child may have difficulty making friends at school which may be due to the young age of the children in this study and the parents are not concerned about that yet.

The concept of immediate competing preferences in Pender's HPM was measured by asking parents what they have done to control their child's weight (Pender, 1996). Most parents responded that they took no measures to control the child's weight because he/she was not overweight (69.1%) and there was a low response rate for the other options available. Only 18.9% of parents would give fewer snacks that are high in fat/sugar, 22.9% of parents would limit the amount of fast food, 22.5% of parents would limit the amount of soda and high sugar drinks, and only 19.6% of parents would increase their child's activity. It may be easier for parents to say they do nothing because their child is not overweight rather than implementing some of the other measures that may cause confrontation or disagreements between the parent and the child. Pender states that ability to perform health promoting behaviors depends on an individual's will power or the power to overcome pressure from your peers, or your children in this case, in order to be successful (1996). The answers for this question could also be analyzed in another light. The parents were also given the option to write in comments for this question. All of the comments dealt with providing their child with good nutrition (2.8%) and the exercise and activities that they do with their child (2.5%). Because of these comments, it makes the researcher believe that perhaps many of the parents checked off the first option and didn't read the other options available. Therefore the data for this question may be biased.

Pender states that individuals have little control over immediate competing demands which may prevent an individual's ability to perform a health promoting
behavior (1996). The data from this study does not support this concept because 77.1% of parents felt they had no difficulties controlling what their child ate. Very few parents had their child cared for by a babysitter or daycare (2.9%), had other household members feed their child without their knowledge (5.1%), or their child would cry if they weren’t given what they wanted (11.6%). These results were also considered in conjunction with the data regarding measures parents have taken to control the child’s weight. If a parent does not take any measures to control the child’s weight because they don’t think the child is overweight, then the parent will not likely recognize any problems controlling what the child eats as indicated in this study.

Limitations

Convenience sampling was used for this study which is a limitation because the results of this study cannot be generalized to all children aged 2-5 years old. The sample was obtained from one area of the country, Las Vegas, Nevada WIC clinics, and limits generalization to other parts of the country.

The researcher did not have direct control over the measurement of the heights and weights of the children so it must be assumed that WIC protocols were followed at all times and that the heights and weights were correct. Another possible limitation exists using clients at WIC. It cannot be guaranteed that they did not have nutritional teaching at their prior visits to WIC which may have biased their answers on the PPNS.

The WIC staff also noted that the Hispanic population may not recognize that eating at the buses or carts that are often out on the street to sell Mexican “fast food” should be included in question #9 & 10 on the PPNS. The questions only listed...
commercial brands such as McDonald's, Burger King, Taco Bell, etc. and the participants in the study may not have included the independent street vendors as fast food sources.

The PPNS was developed by the researcher and had not been used in any other previous study except for the five questions within the PPNS that were taken from Myers & Vargas (2000). The tool used in Myers & Vargas (2000) also had no reliability and validity. This could be a limitation in this study because the tool was not tested on any other population to determine it's reliability and validity.

**Nursing Implications**

This research study has assisted in learning more about the cultural beliefs of the Hispanic population regarding the perceptions of their child's weight which should help nurses and other health professionals. In light of the growing numbers of obese children and the increasing population of persons of Hispanic origin in the United States, health professionals need to educate families regarding the risks of obesity and modify their interventions in relation to the cultural beliefs of the parent and child.

The parental responses regarding measures to control child’s weight shows that health professionals must continue to do more teaching in the community regarding proper nutrition, including limiting the amount of high fat/sugar snack foods, and assuring sufficient exercise to maintain a child’s health. These measures should be undertaken for all children to maintain their health, not only for overweight children. Although parents did not indicate that there was a high number of fast foods eaten (ie. McDonald’s, Burger King, etc), parents also need to be continually educated about “fast
food” products that can be bought in the grocery store, from vending machines, or on the street that are also high in fat and calories. It is also important for health professionals to have information available regarding preparation of ethnic foods, but control the amount of calories, salt, and fat so that families can continue to enjoy their ethnic foods.

Nurse practitioners are increasingly becoming primary care providers and are involved in providing education to families about healthy eating habits and activity levels for children as they grow in order to maintain a healthy growth pattern. It is important that nurse practitioners, as primary care providers, screen for obesity in young children as a standard of practice. Studies have shown that primary care providers in the past have done a poor job of screening for obesity (Nader, et al., 1987, Francis, 1999). The findings from this study need to be considered by nurse practitioners and other health professionals in focusing on health promotion and preventative care in their practice.

Recommendations for Further Research

Recommendations for further research derived from this study are as follows:

1. A replication of this study is recommended with another group of children aged 2-5 years old, perhaps in a different geographical area or with a different socioeconomic group to compare finding that may be more generalized to the population as a whole.

2. It would be ideal, if using WIC clients again, to use only WIC clients that are newly entered into the program to decrease the amount of bias that may have been present due to previous nutritional teaching.

3. If the PPNS was to be used for another study, the researcher would recommend
inverting the choices for questions #15, 16, and 17 as means of checking that the parents who are filling out the survey are reading all the options and not just checking off the first one.

4. If the PPNS was to be used for another study, the wording for question #8 and 9 on the PPNS should be changed regarding the number of times the child and parent eat fast foods. Presently only commercial brands of fast foods were listed and being so specific it may not have measured the true amount of fast foods or convenience foods eaten by the participants in this study.

5. Parents were asked if they had difficulties controlling what their child ate with various options (#16 on the PPNS). One of the options; their child was cared for by a babysitter, which may not account for children who are cared for by family members or a daycare. One parent had written in that their child was cared for at a daycare. The wording specifically as a “babysitter” may have been taken very literally. The wording should be changed for any further study using the PPNS.

6. Reliability and validity of the PPNS may be improved for future studies with various cultures. Participants should be asked if English was their first language, if they were to fill out an English survey, to ensure the participants were understanding the questions to the best of their ability. It was noted in the current study with a large population of Hispanics, the Cronbach’s Alpha score was lower with the English survey (0.558) compared to the Cronbach’s Alpha score with the Spanish survey (0.6397).

Summary

This study examined parental perceptions because parents are the primary
providers and primary influence for their children as they grow. Results show that most parents do perceive their child’s weight accurately, but there is still room for more education to parents regarding the risks of obesity in children. The significant number of overweight children found in this study reinforces that health care professionals, including WIC clinics, have to continue interventions with parents to decrease the overall number of overweight children in our society.

This study was not intended to target the Hispanic population. It appears to be a representative sample of WIC clinics who have a high percentage of Hispanics as their clients. The difference between the cultural groups found in this study provides more evidence to health professionals that interventions must be culturally sensitive in order to increase success with different cultures who perceive things very differently.

Pender’s HPM is a framework used to predict overall health promoting lifestyles and specific health promoting behaviors of individuals (Pender, 1996). Pender’s framework was used only as a guide in this study with specific concepts examined. The concept of interpersonal influences was shown to be very important in the Hispanic culture. Age and education had no bearing on parental perception of the child’s weight in this study. Overall, some of the concepts from Pender’s HPM were supported to predict the likelihood that individuals will be successful in performing a health promoting behavior, but others did not support this notion. The concepts that did not support Pender’s HPM need further study to determine if the lack of support was due to research error or truly due to a lack of a correlation to predict the likelihood that an individual will perform a health promoting behavior.
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Table 1

BMI Percentile Data according to Ethnicity and Gender of the Child

<table>
<thead>
<tr>
<th></th>
<th>n</th>
<th>M</th>
<th>% of children &gt;95th percentile</th>
<th>% of children &lt;5th percentile</th>
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<td></td>
<td></td>
<td></td>
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<td>57.5</td>
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<tr>
<td>Non-Hispanic</td>
<td>55</td>
<td>58.9</td>
<td>9.0</td>
<td>9.1</td>
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<tr>
<td><strong>Gender</strong></td>
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<td></td>
<td></td>
<td></td>
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<td>Female</td>
<td>126</td>
<td>59.5</td>
<td>11.1</td>
<td>5.6</td>
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<tr>
<td>Male</td>
<td>149</td>
<td>55.3</td>
<td>11.4</td>
<td>8.1</td>
</tr>
</tbody>
</table>

Table 2

Percent of Parents who Perceive their Child to be Underweight, Normal Weight, or Overweight

<table>
<thead>
<tr>
<th></th>
<th>n</th>
<th>% Underweight</th>
<th>% Normal Weight</th>
<th>% Overweight</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Ethnicity</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
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<td>215</td>
<td>11.6</td>
<td>79.1</td>
<td>5.6</td>
</tr>
<tr>
<td>Non-Hispanic</td>
<td>55</td>
<td>7.3</td>
<td>83.6</td>
<td>9.1</td>
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<td><strong>Gender of Child</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>126</td>
<td>10.3</td>
<td>82.5</td>
<td>4.8</td>
</tr>
<tr>
<td>Male</td>
<td>149</td>
<td>10.7</td>
<td>78.5</td>
<td>7.4</td>
</tr>
</tbody>
</table>

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Table 3

Number of Times Fast Food Eaten per Week (%). Comparison of Ethnic Groups.

<table>
<thead>
<tr>
<th></th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hispanic Parent</td>
<td>23.3</td>
<td>54.9</td>
<td>15.8</td>
<td>3.3</td>
<td>0.9</td>
<td>1.9</td>
</tr>
<tr>
<td>Child</td>
<td>18.6</td>
<td>62.3</td>
<td>17.2</td>
<td>1.4</td>
<td>0</td>
<td>0.5</td>
</tr>
<tr>
<td>Non-Hispanic Parent</td>
<td>5.5</td>
<td>56.4</td>
<td>21.8</td>
<td>12.7</td>
<td>1.8</td>
<td>1.8</td>
</tr>
<tr>
<td>Child</td>
<td>7.3</td>
<td>60.0</td>
<td>23.6</td>
<td>7.3</td>
<td>0</td>
<td>1.8</td>
</tr>
</tbody>
</table>

Note. One time per week includes those individuals who stated that they ate fast foods less than 1 time per week (ie. 1 or 2 times per month).

Table 4

Comments by Nurse/Doctor, Family, and Friends About Child Being Underweight (U), Normal Weight (N), or Overweight (O)

<table>
<thead>
<tr>
<th></th>
<th>Nurse/Doctor</th>
<th>Family</th>
<th>Friends</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>U  N  O</td>
<td>U  N  O</td>
<td>U  N  O</td>
</tr>
<tr>
<td>Hispanic</td>
<td>215</td>
<td>7.9</td>
<td>70.2</td>
</tr>
<tr>
<td>Non-Hispanic</td>
<td>55</td>
<td>3.6</td>
<td>72.7</td>
</tr>
</tbody>
</table>

Note. The values represent the percentage of comments made by Nurse/Doctor, family, and friends to parents regarding the child's weight on the PPNS.
Table 5

**Percent of Parents who Identified Possible Problems for an Obese Child**

<table>
<thead>
<tr>
<th>Ethnicity</th>
<th>N</th>
<th>Heart Problems when older</th>
<th>Difficulty playing and getting exercise</th>
<th>Difficulty making friends at school</th>
<th>Not feeling good about him/herself</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hispanic</td>
<td>215</td>
<td>67</td>
<td>58.1</td>
<td>25.6</td>
<td>51.2</td>
</tr>
<tr>
<td>Non-Hispanic</td>
<td>55</td>
<td>80</td>
<td>67.3</td>
<td>58.2</td>
<td>69.1</td>
</tr>
</tbody>
</table>

Table 6

**Percent of Parents who Initiate Measures to Control their Child’s Weight**

<table>
<thead>
<tr>
<th>Ethnicity</th>
<th>N</th>
<th>No measures—He/she is not overweight</th>
<th>Fewer snacks that are high in fat/sugar</th>
<th>Limit the amount of fast foods</th>
<th>Limit amount of soda, Kool-Aid, Hi-C, etc.</th>
<th>Increase the child’s activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hispanic</td>
<td>215</td>
<td>68.8</td>
<td>17.2</td>
<td>21.4</td>
<td>21.4</td>
<td>19.1</td>
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<tr>
<td>Non-Hispanic</td>
<td>55</td>
<td>69.1</td>
<td>27.3</td>
<td>30.9</td>
<td>29.1</td>
<td>23.6</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Gender of Child</th>
<th>N</th>
<th>%</th>
<th></th>
<th>%</th>
<th>%</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female</td>
<td>126</td>
<td>75.4</td>
<td>16.7</td>
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<td>21.4</td>
<td>15.9</td>
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<tr>
<td>Male</td>
<td>149</td>
<td>63.8</td>
<td>20.8</td>
<td>24.2</td>
<td>23.5</td>
<td>22.8</td>
</tr>
</tbody>
</table>
Table 7

Percent of Parents Who Identified Difficulty in Controlling what their Child Eats

<table>
<thead>
<tr>
<th></th>
<th>No problems controlling what their child eats</th>
<th>Child is cared for by a babysitter</th>
<th>Other household members feed child</th>
<th>Child cries if I don’t give he/she what they want</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethnicity</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hispanic</td>
<td>215</td>
<td>75.8</td>
<td>2.3</td>
<td>5.1</td>
</tr>
<tr>
<td>Non-Hispanic</td>
<td>55</td>
<td>81.8</td>
<td>5.5</td>
<td>3.6</td>
</tr>
<tr>
<td>Gender of child</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>126</td>
<td>81.7</td>
<td>5.6</td>
<td>6.3</td>
</tr>
<tr>
<td>Male</td>
<td>149</td>
<td>73.2</td>
<td>0.7</td>
<td>4</td>
</tr>
</tbody>
</table>

Table 8

Percent of Parental Responses Regarding How Parents Feel about their Child’s Weight

<table>
<thead>
<tr>
<th></th>
<th>Hispanic (n= 215)</th>
<th>Non-Hispanic (n= 55)</th>
</tr>
</thead>
<tbody>
<tr>
<td>I feel that my child’s weight is fine</td>
<td>84.2</td>
<td>89.1</td>
</tr>
<tr>
<td>I feel that my child is little overweight</td>
<td>6.5</td>
<td>5.5</td>
</tr>
<tr>
<td>I feel that my child is very overweight</td>
<td>0</td>
<td>1.8</td>
</tr>
<tr>
<td>I want my child to lose weight</td>
<td>1.4</td>
<td>1.8</td>
</tr>
<tr>
<td>I am worried about my child’s weight</td>
<td>4.7</td>
<td>1.8</td>
</tr>
<tr>
<td>I feel helpless about my child’s weight</td>
<td>0.5</td>
<td>0</td>
</tr>
</tbody>
</table>
Table 9

Accuracy of Parental Perception of their Child’s Weight According to Ethnicity, Education and Age of the Parent

<table>
<thead>
<tr>
<th>Ethnicity</th>
<th>Education (according to grade)</th>
<th>Age of Parent</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Hispanic</td>
<td>Non-Hispanic</td>
</tr>
<tr>
<td>Accurate Parental Perception</td>
<td>75.8</td>
<td>83.6</td>
</tr>
<tr>
<td>Parent Perceives Child’s Weight &gt;BMI</td>
<td>6.8</td>
<td>9.1</td>
</tr>
<tr>
<td>Parent Perceives Child’s Weight &lt;BMI</td>
<td>17.4</td>
<td>7.3</td>
</tr>
</tbody>
</table>

Note. The values represent the percent of accuracy of the parental perception of the child’s weight according to ethnicity, education and age of the parent.
Pender's Revised Health Promotion Model (1996)
APPENDIX C

QUESTIONNAIRE AND
INFORMED CONSENT LETTER
PARENTAL PERCEPTION NUTRITION SURVEY

1. Age of child:_____
2. Gender of child: Male____ or Female____
3. Ethnicity of child: Hispanic____, African American____, Caucasian____, or Other________
4. Age of parent:_____
5. Relationship to child:____________________
6. Highest level of education of parent:____________________
7. Do you think that your child is overweight? _____ underweight? _____ normal weight?____
8. Do you think that you are overweight? _____ underweight? _____ normal weight?____
9. How often does your child eat fast foods (McDonald’s, Wendy’s, Burger King or Taco Bell, etc.)?_____ (# of times per week).
10. How often do you eat fast foods (McDonald’s, Wendy’s, Burger King or Taco Bell, etc.)?_____ (# of times per week).
11. Has a nurse or doctor ever told you that your child is:
   overweight?______ underweight?______ or normal weight?______
12. Do relatives make comments about your child being:
   overweight?______ underweight?______ or normal weight?______
13. Do friends make comments about your child being:
   overweight?______ underweight?______ or normal weight?______
For the following questions, check all that apply:

14. What problems do you think an overweight child might have?
   - Heart problems when older.
   - Difficulty with playing and getting enough exercise.
   - Difficulty making friends at school.
   - Not feeling good about himself/herself.
   - Other (Explain) ________________________________

15. What have you tried to do to control your child’s weight?
   - Nothing because I don’t think he/she is overweight.
   - Fewer snacks that are high in fat/sugar (chips, ice cream, cookies, candy, chocolate).
   - Limit amount of fast foods (McDonald’s, Wendy’s, Burger King, etc).
   - Limit amount of soda, Kool-Aid, Tang, Hi-C.
   - Increase my child’s activity.
   - Other (Explain) __________________________________________________________

16. What has made it difficult to control what your child eats?
   - I have no problems with this.
   - My child is cared for by a babysitter.
   - Other household members feed my child without my knowledge.
   - My child cries if I don’t give him/her what he/she wants.
   - Other (Explain) __________________________________________________________

17. How do you feel about your child’s weight?
   - I feel that my child’s weight is fine
   - I feel that my child is a little overweight
   - I feel that my child is overweight
   - I feel that my child is very overweight
   - I want my child to lose weight
   - I am worried about my child’s weight
   - I feel helpless about my child’s weight
   - Other (Explain) __________________________________________________________
INFORMED CONSENT LETTER

You are invited to take part in a research study. Alison Martodam, a graduate student in the College of Nursing at the University of Nevada, Las Vegas (UNLV) is working with WIC staff on this project.

You will be asked to answer some questions about yourself and your child. It will take you about 10 minutes. Your answers will be seen by WIC staff and the researcher only. No one else will see them. Once the forms are completed, the researcher will keep them and they will be locked in a cabinet.

You can be involved in this study if you have a child between the age of 2 to 5 years. The benefit of taking part in this research project will help us learn more about eating habits and the weight of your child. You may feel some discomfort answering some of the questions on the survey, but you can stop answering questions at any time without it affecting your services with WIC.

If you have questions or concerns as you complete the forms, you may ask WIC staff or the researcher for help. Alison Martodam will be present in your clinic so you can ask for her if you have any questions. If you have questions about this research study, you can also contact the researcher, Alison Martodam at (702)895-3360. You can call the Office for the Protection of Research Subjects at (702)895-2794 if you have any questions regarding your rights as a research participant.

If you decide to take part in this research project, it is strictly your choice, and you may change your mind at any time. Not taking part will not affect the services you receive from WIC. By filling out the attached survey, it shows that you understand this consent form and you agree to take part in this study.
PERCEPCION PARENTAL DE LA ENCUESTA DE NUTRICION

1. Edad del niño: _____
2. Sexo del niño: Masculino_____ Femenino_____ 
3. Origen del niño: Hispano_____, Afro-americano_____, Caucásico_____, Otros_____
4. Que edad tiene usted? _____  5. Es usted el padre___ la madre___ Otros_____
6. Nivel educacional que tiene Usted: __________________________ 
7. ¿Usted cree que su niño tiene sobrepeso? ____ ¿Falta de peso? ____ ¿Peso normal?____
8. ¿Usted piensa que usted tiene sobrepeso? ___ ¿Falta de peso? ____ ¿Peso normal?_____ 
9. ¿Con que frecuencia su niño come comida rápida? (McDonald’s, Wendy’s, Burger King,
    Taco bell, etc.)_____ (Cuántas veces por semana.)
10. ¿ Con qué frecuencia Usted come comida rápida? (McDonald’s, Wendy’s, Burger King
    Taco bell, etc.)_____ (Cuántas veces por semana.)
11. ¿Alguna vez una enfermera o un doctor le ha dicho que su niño tiene:
    Sobrepeso________ Falta de peso_________ Peso normal________
12. Sus familiares suelen hacer comentarios si su niño tiene:
    Sobrepeso______ Falta de peso_________ Peso normal________
13. Sus amigos comentan si su niño está con:
    Sobrepeso_______ Falta de peso_________ Peso normal________
En las siguientes preguntas, marque todas las que le sean aplicables:

14. ¿Qué problemas podría tener un niño con sobrepeso?
   - Problemas del corazón cuando sean mayores.
   - Dificultad al jugar y realizar ejercicios.
   - Dificultad para tener amigos en la escuela.
   - Problemas de autoestima al sentirse mal por su apariencia.
   - Otros (explicar)

15. ¿Qué ha hecho usted para controlar el peso de su niño?
   - Nada porque no creo que él / ella tiene sobrepeso.
   - Disminuir los bocadillos que contienen muchas calorías (papitas, helados, nieve, galletas, caramelos, chocolates.)
   - Reduzco la cantidad de comida rápida (MacDonald’s, Wendy’s, Burger king, etc.)
   - Limito la cantidad de soda, Kool-Aid, Tang, Hi-C.
   - Incremento la actividad de mi niño.
   - Otros (explicar)

16. ¿Qué hace difícil el poder controlar lo que come su niño?
   - No tengo problemas con esto.
   - La niñera cuida de mi niño.
   - Otros miembros de mi familia alimentan a mi niño pero yo no tengo conocimiento de esto.
   - Mi niño llora si no le doy lo que él / ella quiere.
   - Otros (explicar)

17. ¿Cómo se siente acerca del peso de su niño?
   - Yo creo que el peso de mi niño es normal.
   - Yo creo que mi niño tiene un poco de sobrepeso.
   - Yo creo que mi niño tiene sobrepeso.
   - Yo creo que mi niño tiene mucho sobrepeso.
   - Yo quiero que mi niño pierda peso.
   - Yo estoy muy preocupada por el peso de mi niño.
   - Yo me siento impotente, incapaz de hacer algo por controlar el peso de mi niño.
   - Otros (explicar)
CARTA INFORMATIVA DE MUTUO ACUERDO

Usted está invitado a formar parte en el estudio de investigación. Alison Martodam, estudiante graduada del Colegio de Enfermeras de la Universidad de Las Vegas Nevada (UNLV) está trabajando con el personal de WIC sobre este proyecto.

Usted estará invitado a responder algunas preguntas acerca de usted mismo y de su niño. Esto tomará alrededor de 10 minutos. Sus respuestas serán solamente observadas por el personal de WIC y la investigadora. Ninguna otra persona tendrá acceso a ellas. Una vez que las formas estén completas, la investigadora las tomará y serán colocadas en un gabinete debidamente aseguradas.

Usted podrá formar parte de este estudio si usted tiene un niño entre 2 a 5 años de edad. El beneficio de formar parte en este proyecto de investigación nos ayudará a tener mayor información acerca de los hábitos de alimentación y del peso de su niño. Usted tal vez se sentirá incomodo respondiendo algunas de las preguntas de la encuesta, sin embargo, usted puede dejar de responder a las preguntas en cualquier momento sin que esto afecte sus servicios con el WIC.

Si usted tiene preguntas o alguna inquietud conforme vaya completando la forma, puede preguntar al personal de WIC o a la investigadora en caso de que necesite ayuda. Si usted tiene preguntas acerca de este estudio de investigación, puede contactarse con la investigadora, Alison Martodam al (702) 895-3360. Ella tal vez estará presente en tu clínica, por lo tanto puede preguntar por ella. Además, usted puede llamar a la Oficina de la Protección de Asuntos de Investigación al (702) 895-2794 en caso de que tenga algunas dudas concernientes a sus derechos como participante en la investigación.

Si usted decide tomar parte en este proyecto de investigación, esto es su decisión, sin embargo usted puede cambiar de idea en cualquier momento. El no tomar parte en este proyecto de ninguna manera afectará los servicios que usted recibe del WIC.

Completando la encuesta adjunta, nos demuestra que usted entiende esta forma de acuerdo mutuo y que usted está de acuerdo en formar parte de este estudio.
DATE: April 5, 2001
TO: Alison Martodam
    Nursing
    M/S # 3018
FROM: Dr. Jack Young, Chair
      UNLV Biomedical Sciences Institutional Review Board
RE: Status of Human Subject Protocol Entitled:
    “Parental Perceptions of Childhood Weight Status in Preschool Children”
    OPRS #501s0401-006

This memorandum is official notification that the protocol for the project referenced above has
been reviewed by the Office for the Protection of Research Subjects and has been determined as
have having met the criteria for exemption from full review by the UNLV Biomedical Sciences
Institutional Review Board. In compliance with this determination of exemption from full
review, this protocol is approved for a period of one year from the date of this notification and
work on the project may proceed.

Should the use of human subjects described in this protocol continue beyond a year from the date
of this notification, it will be necessary to request an extension.

If you have any questions or require assistance, please contact the Office for the Protection of
Research Subjects at 895-2794.

cc: OPRS File
ALISON MARTODAM
2524 STINEQUIST AVE
HENDERSON, NV 89052

Dear Ms Martodam:

The Department of Nursing Human Subjects Rights Committee met on your proposal “Parental perceptions of childhood weight status in preschool children” and give approval with the following changes.

1. You use the term “subjects” in some places and “participants” in others. Probably need to be consistent. We prefer “participants”.
2. Under Description of the Study, Purpose: Spell out PPNS and show abbreviation in parentheses, then on second page, just use abbreviation.
3. Also on page 2 of study description, you want to make it clearer that the participants see a nutritionist after filling out the questionnaires so questions can be answered.
4. Under the risks/benefits section there is really no benefit to these participants and minimal risk as well. You also need to modify your terms regarding healthy and unhealthy as indicated on the corrected version you have.
5. There is a typo on the Informed Consent Letter, 4th paragraph, also, you need to put this letter on Department of Nursing letterhead.

If you make any changes in your study please inform the Committee of your proposed changes. It looks like a very interesting study.

Sincerely,

Cheryl L. Bowles, Committee Member
Human Subjects Rights Committee
Department of Nursing, UNLV
UNLV

PROTOCOL FORM APPROVAL SHEET
FOR RESEARCH INVOLVING HUMAN SUBJECTS

Log Number: 31 March 2001

Title of Project:
Parental perceptions of childhood weight status in preschool children.

Investigator: Alison Martodam & Margaret Louis

After reviewing this proposal, the members of the Department of Nursing, Human Subjects Rights Review Committee has indicated below their approval/disapproval of this proposal.

Signature of Committee Members  Approve  Disapprove

[Signature]

[Signature]

The above named project is hereby approved/disapproved (circle one).

Date: April 2, 2001

Committee Chairperson's Signature

Department of Nursing
4505 Maryland Parkway • Box 453018 • Las Vegas, Nevada 89154-3018
(702) 895-3000 • FAX (702) 895-4807

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November 28, 2000

Ms. Alison Martocamm
College of Health Sciences, Department of Nursing
Bigelow Health Sciences Building (BHS)
Room 417
4505 Maryland Parkway, Box 453018
Las Vegas, Nevada 89154-3018

Dear Ms. Martocamm:

Thank you for the article, Prenatal Perceptions of the Preschool Obese Child, draft survey, which you will be using in your research project, and synopsis of proposed synopsis of your graduate research study. It is my understanding that you will be replicating the study in the article using WIC clients at the Clark County Health District WIC clinics and Sunrise Foundation WIC clinics.

This letter is written permission to conduct your graduate research project on parental perceptions of the preschool obese child using WIC clients. In turn, you will keep me abreast of your research studies as they relate to the WIC clinics, and provide me with a copy of the final consent letter and survey the parent will complete. I would also like a copy of your final thesis paper.

Good luck in your graduate studies and research project.

Sincerely,

Nola Haynes, RD

C: Dennis White, WIC Program Manager
April 4, 2001

Ms. Alison Martodam
College of Health Sciences, Department of Nursing
Bigelow Health Sciences Building (BHS)
Room 417
4504 Maryland Parkway, Box 453018
Las Vegas, Nevada 89154-3018

Dear Ms. Martodam,

Thank you for your interest in conducting your graduate research project with WIC clients regarding parental perceptions of childhood weight status in preschool children. We have agreed that you will be using the Sunrise Foundation WIC clinics in Las Vegas, Nevada.

You have received written permission from Nola Haynes, RD, and Dennis White, WIC Program Manager, Nevada State WIC. This letter is written permission to conduct your graduate research project on parental perceptions of childhood weight status in preschool children in our WIC clinics. In turn, you will keep the Sunrise Foundation and myself abreast of the progress of your research study as related to WIC clients, provide me with a copy of the final consent letter and survey that WIC parents will fill out, as well as a final copy of your thesis paper.

Good luck in your graduate studies and research project.

Sincerely,

Jeanne Marie Toscano, WIC Manager
Ms. Alison Martodam, RN, BSN
c/o University of Nevada, Las Vegas
4505 Maryland Parkway
Las Vegas, NV 89154

Dear Ms. Martodam:

You are welcome to use any part of the survey questionnaire that I and my colleague, Zulma Vargas, developed for our study about parental perceptions of the preschool obese child.

Please let me know if you have any further questions. Good luck on your study.

Sincerely,

Sue Myers, RN, MSN, CPNP
VITA

Graduate College
University of Nevada, Las Vegas

Alison F. Martodam

Local Address:
Department of Nursing
4505 Maryland Parkway
Box 453018
Las Vegas, NV 89154-3018

Degrees:
Bachelor of Science, Nursing, 1995
University of Saskatchewan

Thesis Title: Parental Perceptions of Childhood Weight Status in Preschool Children.

Thesis Examination Committee:
Chairperson, Dr. Margaret Louis, Ph. D.
Committee Member, Dr. Susan Rush-Michael, D.N.Sc.
Committee Member, Andra Fjone, MSN
Graduate Faculty Representative, Dr. Jean Henry, Ph. D.