NUTRITIONAL STATUS AND INCIDENCE OF RISK FACTORS OF PATIENTS ATTENDING PRENATAL CLINIC AT THE LAWTON PUBLIC HEALTH SERVICE INDIAN HOSPITAL

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CHAPTER I

INTRODUCTION

American Indians are at nutritional risk, especially during pregnancy. They no longer obtain their food from the land but now rely on the conventional American supermarket and fast food establishment for food. While the American Indian has rapidly adjusted to new methods of acquiring food--purchasing rather than hunting and gathering--he has not been so quick to adapt his culture to a new way of life (1).

American Indians still fall below national averages in all areas of socioeconomic development, education, and health. While mortality and morbidity for all ages of American Indians have been reduced in the 1900's, both remain below indexes for the non-Indian population. Chronic systemic diseases most severely affecting the American Indian population include heart disease and diabetes mellitus, both of which are related to diet. The American Indian suffers the highest incidence and severity of diabetes of any ethnic group and country.

Infant morbidity and mortality remain comparatively high as with any socioeconomically disadvantaged group. Such groups are characterized by low knowledge of health, low acceptance of conventional medical and health care services and practices, limited availability of and access to health services, and attitudinal barriers that inhibit behavioral modification and change (2). Compounding the study and evaluation of disadvantaged groups are the tendencies toward

stereotyping and bias and the problems of successfully managing a study to its completion.

In assessing the health status of any population, particular attention is always focused on the very young population in general and specifically on perinatology which comprises the full spectrum of maternal and child health care from family planning through conception, fetal development, birth, neonate, and infant, up to age one. Integral to any study is the examination of dietary practices and nutritional status.

Among children, malnutrition and nutritional deprivation may result in stunted growth, impaired development, behavioral and psychologic disturbances, and impaired learning ability. Promotion of child health requires that efforts begin at conception to ensure optimal fetal development (3).

It is obvious that the assessment of child health of any group must of necessity include the study of factors impacting the health status of the newborn. This requires the analysis of risk factors, health status, and the dietary practices of expectant mothers. This led to the interest in studying the risk factors and dietary practices of an identifiable group of American Indian prenatal patients in the state of Oklahoma, and eventually to the conduct of this study at the Lawton Indian Hospital in Lawton, Oklahoma.

Purpose

The purpose of this study is to determine the incidence of risk factors, as well as the adequacy of the diets of patients attending the prenatal clinic at the Lawton Indian Hospital in Lawton, Oklahoma.

Objectives

1. To determine whether or not the incidence of risk factors during pregnancy for this population will be greater than the incidence for the general population.

2. To determine the association between nutritional habits including: number of times the subjects snacked daily, foods used for snacks, meals eaten away from home, method of cooking, incidence of pica, use of nutritional supplements and clinical data including: hemoglobin, hematocrit, height, weight, weight at start of pregnancy, diabetes screen results, incidence of morning sickness.

3. To determine the adequacy of dietary intakes of subjects as compared to the Recommended Dietary Allowances.

4. To determine the association between nutritional habits including: number of times the subjects snacked daily, foods used for snacks, meals eaten away from home, method of cooking, incidence of pica, taking of nutritional supplements and age, income.

Hypotheses

The following hypotheses were formulated for this study:

1. The incidence of risk factors during pregnancy for this population will not be greater than the incidence for the general population.

2. There will be no association between nutritional habits including: number of times the subjects snacked daily, foods used for snacks, meals eaten away from home, method of cooking, incidence of pica, use of nutritional supplements and clinical data including:

hemoglobin, hematocrit, height, weight, weight at start of pregnancy, diabetes screen results, incidence of morning sickness.

3. There will be no association between adequacy of dietary intakes and Recommended Dietary Allowances.

4. There will be no association between nutritional habits including: the number of times the subjects snacked daily, foods used for snacks, meals eaten away from home, method of cooking, incidence of pica, taking of nutritional supplements and age, income.

Limitations

The following limitations were identified for this study:

1. The sample included only pregnant women who attended the Public Health Service Lawton Indian Hospital prenatal clinic during the period June 3-21, 1985.

2. Twenty-four hour recalls were obtained on days the subjects visited the clinic, and, therefore, may not be entirely typical of daily intake i.e. - a Monday recall for a weekend day may be atypical.

Definition of Terms

The following terms were identified for this study:

1. Adequate diet - A diet that 1) furnishes appropriate levels of all nutrients to meet physiologic and biochemical needs of the body at all stages of the life cycle and 2) avoids excesses of any nutrients that may increase the risk of diet-related diseases (4).

2. Recommended Dietary Allowances (R.D.A.) - The levels of intake of essential nutrients considered in the judgement of the Committee on Dietary Allowances of the Food and Nutrition Board,

National Research Council, on the basis of available scientific knowledge to be adequate to meet the known nutritional needs of practically all healthy persons. The RDA employed in this research were those established in 1980 (5).

3. Twenty-four hour recall - A method of dietary study in which a person is asked to recall his food and beverage intake for the past 24 hours (6).

4. Pica - The practice of eating nonnutritive substances such as clay or laundry starch.

5. Hemoglobin - The oxygen-carrying pigment of the erythrocytes in bone marrow (7).

6. Hematocrit - The volume percentage of erythrocytes in whole blood (7).

7. American Indian - A native of the United States who has been identified by genetic lineage to be of 1/4 degree or more American Indian descent (8).

8. Diabetes Mellitus - A disorder of carbohydrate metabolism characterized by inadequate secretion or utilization of insulin, by polyuria and excessive amounts of sugar in the blood and urine, and by thirst, hunger, and loss of weight (7).

9. Hypertension - A history of abnormally high arterial blood pressure (140 systolic/90 diastolic or greater) (9).

10. Fetal Alcohol Syndrome - A syndrome of altered prenatal growth and morphogenesis occurring in infants born of women who were chronically alcoholic during pregnancy (10).

11. Gravidity - The total number of actual pregnancies experienced (7).

12. Parity - The total number of live births occurring to a woman (7).

13. Clinical Data - statistical findings obtained on various physiological and anthropometric factors by various standard methods of measurement, testing, and screening (6).

14. Risk factors in pregnancy - those factors for which the absence or presence have been identified as presenting or increasing the possibility of adversely affecting the outcome of pregnancy (11).

15. High risk pregnancy - a pregnancy which has been clinically determined to present one or a multiple of factors sufficient to present a potential risk to the health, life, or recovery of the mother and/or to the development, health safety, or life of the fetus and neonate (11).

CHAPTER II

REVIEW OF LITERATURE

This study was conducted to determine the incidence of risk factors as well as the dietary intake and food patterns of pregnant women attending the Public Health Service Lawton Indian Hospital prenatal clinic, Lawton, Oklahoma. Literature pertaining to the physiological changes during pregnancy in the mother, the nutrient needs during pregnancy, pica, risk factors during pregnancy, historical development of health services for American Indians, American Indian food habits, and methods of conducting nutritional assessment are included in this review.

Physiological Changes During Pregnancy

Many of the changes occurring in a woman's body during pregnancy are initiated by hormones (12). The over 30 hormones present during gestation affect the body in many different ways to allow the uterus to expand, to allow additional time for absorption of nutrients, and to accommodate the flow of nutrients and metabolic wastes between mother and fetus.

At 36 weeks gestation the mother's blood contains 50% more plasma than when fertilization occurred. As a result, the normal components of blood are more dilute and a drop in hemoglobin and hematocrit can be expected.

To handle the increased blood volume, the rate at which the kidneys filter liquid increases during pregnancy (13). The reabsorptive capacity does not increase. This causes a portion of water-soluble nutrients to be flushed from the body with normal metabolic wastes (12).

Respiratory sensitivity is heightened to allow an increased supply of oxygen for energy production and for increasing the capacity to expire carbon dioxide. Hormones enhance fat storage which provides a potential energy source as well as physical protection of the fetus.

Nutrient Needs During Pregnancy

The Food and Nutrition Board of the National Research Council (NRC) has recommended increases of all nutrients during pregnancy (5). These Recommended Dietary Allowances are shown in Table I. Several of the most critical are discussed:

Energy

Over the years, the amount of weight gain considered appropriate during pregnancy has changed. In the late 19th century a minimal weight gain was considered beneficial because this resulted in a low birth weight baby which was much easier to deliver. This practice remained the standard well into the 20th century and still persists among some physicians today (12).

The National Research Council currently recommends an average weight gain of 22-27 pounds during pregnancy to be achieved by an extra 300 kcal/day. This is a relatively small increase in calories, therefore, the pregnant woman must choose her food very carefully in order to meet the increased requirements for all other nutrients.

TABLE I

RECOMMENDED DIETARY ALLOWANCES FOR
PRIME CHILD BEARING YEARS

Nutrient	Non-Pregnant (19-22)	Pregnancy
Energy (Kcal)	2100	+300
Protein (g)	44	+30
Vitamin A (RE)	800	+200
Vitamin D (g)	7.5	+5
Vitamin E (mg TE)	8	+2
Ascorbic Acid (mg)	60	+20
Thiamin (mg)	1.1	+0.4
Riboflavin (mg)	1.3	+0.3
Niacin (mg NE)	14	+2
Vitamin B_6 (mg)	2.0	+0.6
Folacin (g)	400	+400
Vitamin B_{12} (g)	3.0	+1.0
Calcium (mg)	800	+400
Phosphorus (mg)	800	+400
Magnesium (mg)	300	+150
Iron (mg)	18	18+
Zinc (mg)	15	+5
Iodine (g)	150	+25

Source: National Academy of Sciences, National Research Council (5).

The normal pattern of this weight gain is approximately 1 kilogram during the first trimester and 0.3 to 0.4 kg per week in the second and third trimesters (14). Weight reduction during pregnancy is not recommended. Restricted weight gain is correlated with infants of low birth weight (16). When calorie intake is below 36 kcal per kg of pregnant body weight, there is an interference in nitrogen utilization. Dieting and fasting lead to more rapid and severe development of ketosis, hypoglycemia, and hypoinsulinemia in pregnant women than in nonpregnant women. Such changes are reflected in the amniotic fluid and can adversely affect the fetus. Ketosis is poorly tolerated by the fetus and can severely inpair neurological development. Overweight mothers who diet and restrict weight gain have twice the infant mortality rate of overweight mothers who do not diet and gain the recommended weight for pregnancy (14).

The pattern of weight gain during the trimesters of pregnancy reveals the importance of diet throughout the entire cycle of pregnancy. Three distinct developmental stages lead to the birth of a baby.

The first stage, blastogenesis, takes place during the two weeks following fertilization. The fertilized egg begins dividing immediately and soon forms a cell-lined hollow sphere called a blastula. As cell division continues, an inner mass of cells is formed which becomes the embryo, and an outer layer, the trophoblast, which becomes the placenta. The blastula attaches itself to the uterine wall and begins absorbing nutrients. The inner cell mass differentiates into the embryo, a yolk sac, and a fluid-filled sac called the amnion.

In the embryonic stage, the embryonic disc develops into three types of cells called germinal layers. The ectoderm forms the brain, nervous system, hair, skin, and sensory organs. The mesoderm forms bone, muscle, connective tissue, and parts of the cardiovascular, excretory, and reproductive systems. The endoderm forms the lining of the respiratory, urinary, and digestive tracts. This second stage is completed in sixty days, or eight weeks after fertilization.

At this point, the embryo is considered a fetus. This marks the beginning of the fetal stage of development, a period of rapid growth that continues until birth. The cells not only divide now, but also grow in size. The fetal weight has been shown to increase from 6 grams at three weeks gestation to approximately 3,250 grams at the time of birth. Energy and nutritional requirements are important throughout all trimesters of prengnancy.

Protein

Dietary intake of protein is directly correlated with socio-economic status, with higher amounts of protein being consumed by pregnant women of higher socioeconomic levels. This aspect of the diet, a higher amount of protein, may be correlated with high birth weight babies (15). Protein provides the structural building blocks for synthesis of hormones, cells, and tissues in the fetus, the placenta, and the mother herself. An additional 30 grams of protein per day are re- quired during pregnancy (5). At least one-third of this amount should come from animal sources. A strict vegetarian must choose her food carefully in order to make adequate non-animal substitutions in her diet to assure essential amino acid intake.

The requirements for protein are greater for the pregnant adolescent as they must provide for their own growth as well as the development of the fetus. The Nutrition Committee for the Canadian Pediatric Society surveyed adolescent girls in 1973 and found that 15%-25% failed to consume an adequate amount of protein based on a 24-hour recall of dietary intake (15).

Vitamins

There are two types of vitamins, water-soluble and fat-soluble (10). The water-soluble vitamins include vitamin C and the B-complex vitamins including thiamine, niacin, riboflavin, vitamin B_6, folacin, and vitamin B_{12}. When an excess in dosage of the water-soluble vitamins is consumed, what is not needed by the body is normally excreted in the urine, and therefore is not considered to be toxic. Possible toxicity of specific water-soluble vitamins, when taken in megadoses, is being investigated.

The B-complex vitamins are important in pregnancy due to their role in energy production. Pyridoxine (vitamin B_6) is required for protein synthesis and therefore, fetal development. Vitamin B_{12} is essential in the synthesis of red blood cells. Vitamin C is required for the formation of collagen, an important supportive tissue.

Folate is required for protein synthesis and for the synthesis of red blood cells. Cofactors of folic acid are required for metabolism in every cell of the human body. Folate is essential to DNA synthesis and for maintaining mitotic activity of individual cells.

After iron deficiency, the inadequate intake of folate represents the most common deficiency found in pregnant women in the United

States (16). In folate deficiency, cells do not mature properly. This is observed in the megaloblast in bone marrow but may also be identified in other organs of the fetus as well.

Folate deficiency has been found to be more prevalent in patients with abruptio placentae and other late pregnancy bleeding, fetal malformation, and in spontaneous abortions. The RDA of folacin is 800 g.

Body stores of folate last only three weeks, establishing folate deficiency as a sensitive indicator of dietary inadequacy. There is an increased demand for folate in instances of multiple pregnancy, in closely spaced pregnancies and grand multiparity, and in conditions of chronic iron deficiency.

The fat-soluble vitamins are the vitamins A, D, E, and K (10). Because these vitamins are soluble in fat, they are 1) absorbed into the body with fat, 2) stored in the body, 3) normally excreted with feces, and 4) considered to be potentially toxic in large doses. Vitamin A is essential for the development of skin and epithelial tissue lining internal organs. Vitamin D is necessary for development of healthy bones and teeth. Severe Vitamin D deficiency can result in congenital rickets. Vitamin E aids in protecting cell membranes, while vitamin K is crucial to the blood clotting process.

Minerals

The minerals calcium, phosphorous, iron, iodine, magnesium, and zinc are all critical in pregnancy (12) (17) (5). The need for calcium and phosphorous is increased during pregnancy because these minerals are vital components in the development of the fetal skeleton. It has been calculated that in the third trimester, when

the fetal skeletal growth is at its peak and the teeth are being formed, the fetus draws 13 mg/hr of calcium from the maternal blood supply, or 250 to 300 mg/day. At the time of birth, the newborn has accumulated approximately 25 grams of calcium. Inadequate stores of maternal calcium can lead to neonatal hypocalcemia which is marked by brittle, weak, and improper bone formation and enamel hypoplasia (3).

Phosphorous is a key element in the production of energy (10). The amount of phosphorous is generally high in the American diet, therefore, a deficiency in this element is rare. Not only are there high amounts of phosphorous in naturally occurring foods, but snack foods, processed meats, and cola drinks have even more concentrated amounts than non-processed foods. This can become a problem as these high intakes disturb the calcium-phosphorous ratio. When there is more phosphorous than calcium in the blood stream the rate of excretion of calcium is increased, therefore, the pregnant woman who consumes large amounts of processed meats and carbonated beverages must be twice as concerned about her calcium intake (3).

The most common specific deficiency affecting pregnant women is iron deficiency (18). Iron is the major component required for synthesis of red blood cells. Approximately 670 milligrams (mg) of total extra iron are required during pregnancy: 290 mg for the additional hemoglobin used in the expansion of the mother's blood; 134 mg which is stored in the placenta; and 246 mg for the blood and body stores of the fetus (5). Although during pregnancy the approximately 120 mg of iron normally lost in menstruation are saved, this does not compensate for the enormous amount of iron required by the pregnancy. Due to the fact that it is virtually impossible for even a non-pregnant

woman to meet her iron requirements through diet alone, supplemental iron is routinely prescribed during pregnancy.

The requirements for magnesium are increased during pregnancy due to its functions as a component in the structure of bone, as well as its role in development of the enzyme systems and neuromuscular control (17). Zinc is required for the growth of the fetus and placenta at the rate of an additional .75 mg per day (5). Iodine is an essential mineral in the regulation of basal metabolism. Normally the requirements for iodine may be met by using iodized salt, however, a pregnant woman on a salt-restricted diet will be required to use other sources for iodine (12).

Whether or not salt-restriction is appropriate during pregnancy has been debated in recent years. In the past, pregnancy was thought to be a time of sodium retention and, therefore, fluid accumulation and hypertension were viewed as normal. Research has shown, however, that sodium-restrictions are contraindicated in pregnancy because pregnancy is actually a time of salt-losing in the body. Therefore, a pregnant woman is now advised to salt her food "to taste", and let her body's own renal function regulate the sodium levels (12).

Pica

Pica refers to the abnormal intake of non-nutritive substances such as dirt, cornstarch, plaster, and ice. Excessive intake of pica can be harmful. Nutritious foods may be replaced by intake of pica, and dietary iron and zinc may be reduced. Harmful bacteria and other elements such as lead may be ingested with these items (19). Pica may reduce bodily absorption of essential minerals. Pica has been impli-

cated as a cause of iron deficiency in pregnancy and iron deficiency has been suggested as an etiologic factor in the practice of pica (20).

Studies of pica practices have indicated an increase in lower hemoglobin levels; increased prevalence of toxemia, hypertension, and edema; and increased incidence of fetal poisoning, i.e., lead poisoning. Pica has been demonstrated to be a factor in overeating (21) (22). Although not common, bizarre substances of pica have been identified after detection of chronic clinical conditions such as fecal impaction, toxicity, and digestive disorders. Detection of pica is complicated by the often reluctance and refusal of patients to admit to the practice and to the substances and amount of pica.

Risk Factors During Pregnancy

Effect of Age on Pregnancy

The effect of the mother's age during pregnancy may be a factor in fetal development and mortality. Female growth is usually not completed until age 17 to 18. Because they are still growing, girls under 17 have greater nutritional requirements in relation to body size than do adult women. The additional nutrient demands of pregnancy may compromise growth potential and increase risk in pregnancy.

Further complicating adolescent pregnancy is the tendency toward poor dietary habits. Adolescent females are often deficient in iron and do not meet the nutrient needs of their own developing bodies. Unwed teens, reluctant to inform family of pregnancy, often undertake severe dieting which can lead to poor fetal development. Further, teens are often reluctant to gain the weight necessary for optimal fetal development.

It has been found that adolescents have a greater chance of a low-birth weight infant, however, this may be alleviated by early prenatal care (23). Disproportionately large numbers of babies of low birth weight are born to young adolescent mothers, and the rate steadily decreases as the age of the mother increases (24). Other possible complications due to adolescent status include toxemia of pregnancy, pregnancy-induced hypertension, premature labor, and cephalopelvic disproportions resulting in prolonged labor (25).

Young maternal age presents a state of relative physiologic immaturity. Early entry into prenatal care is influenced by a teenager's willingness to accept medical recommendations and deal emotionally with pregnancy. Perinatal risk in adolescent pregnancy is, therefore, affected by both physiologic and socioemotional factors. Risk in adolescent pregnancy can be diminished with a program of nutrition counselling, food supplementation, and high quality maternal care (26).

An older mother also faces certain risks during pregnancy. Pregnancy may occur to older women totally unplanned, unexpected, and unwanted, particularly during hormonal imbalances attending menopause. The "change of life baby" may be viewed negatively by both the mother and those around her resulting in emotional distress and lack of adequate prenatal care. Women bearing their first child in their late thirties are about twice as likely to develop toxemia as those in their twenties (27). Statistics show that older women are two and one half times more likely to suffer an abruption of the placenta wherein the placenta separates from the uterus prior to birth (28). Also, certain chronic conditions such as diabetes, hypertension, kidney disease, and heart conditions are more common in the older pregnant woman (29).

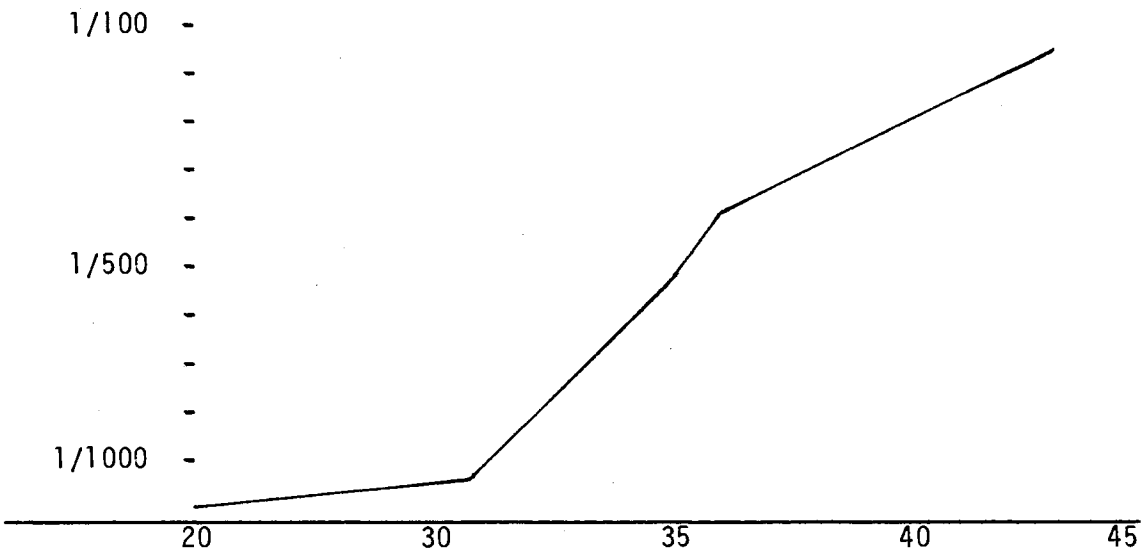
The older mother's nutritional status and overall health may be reduced to a point that maintenance of pregnancy is difficult. She is more likely to have had multiple previous pregnancies which may have been closely spaced thereby precluding total recovery of optimal health. As with the young adolescent a program of nutrition counselling, food supplementation, and high quality maternal care is crucial.

The most common disorder associated with childbirth in women over 30 years of age is Down's syndrome (28). Down's Syndrome, or mongolism, is a congenital idiocy in which a child is born with slanting eyes, broad short fingers, and which is associated with trisomy chromosome number 21. Figure 1, page 16, shows the incidence of Down's Syndrome by age of the mother.

Height-Weight

The single most important physical finding which bears on prenatal nutritional adequacy is weight--both prepregnancy weight and observed weight gain in pregnancy. Low "weight for height" patients and poor weight gain during pregnancy, especially in the low prepregnancy weight patient, both present serious indication of inadequate nutri- tion and are accompanied by an increase in low birth weight infants (30) (31).

Obesity poses particular problems in the care of the patient due to the tendency of the inexperienced health professional to assume more than adequate nutrition is present in such cases. The obese, and particularly the obese poor, are more likely to have poor protein and iron intake as compared to the normal weight patient (32). The obese patient presents increased frequency of chronic health problems and poor dietary habits and therefore an increased risk during pregnancy.



Source: Brewer, G.S.: The Pregnancy-After-30 Workbook. Rodale Press., 1978 (28)

Figure 1. Incidence of Down's Syndrome in Relation to Maternal Age

The underweight mother requires attention to the nutrient needs of both the mother and the fetus. The demand for nutrients to the fetus may not be met by the severely underweight mother without a carefully planned and supervised nutrition program. Low birth weight infants are more frequent in chronically underweight malnourished mothers. The nutrient demands of the fetus may severely reduce already inadequate body stores of various nutrients.

Number of Children

The gravidity of the mother, or the total number of conceptions is first assessed in relation to the parity, or the total number of deliveries of living infants. Secondary assessment of gravidity includes

the comparison of gravidity to age and the frequency of conception. With the availability of family planning, gravidity decreases, and with improved perinatal care, parity increases.

High gravidity in comparison to age, i.e., four pregnancies prior to age 20, ten pregnancies or more prior to age 40, increases the risks of low birth weight babies, genetic anomalies in babies, and of both infant and maternal morbidity and mortality (33). The nutritional status of the woman is diminished with the increase in the number and relative frequency of pregnancies. Although pregnancy is viewed as a natural and normal physiological process, it remains a stress from which recovery is required. Up to two years of normal diet are required to replace the iron lost during a pregnancy (3). Hence, if there is a shorter time interval between pregnancies, an even greater drain is placed on the mother's already depleted iron stores. Failure to effectively achieve restoration of the mother's physiological and psychological health and well being prior to a consecutive pregnancy severely compromises the outcome of such pregnancies.

Chronic Diseases

Because both the development and progress of many chronic diseases are related to diet, the presence of chronic maternal systemic illness in the expectant mother with its potential relationship to nutritional adequacy should be thoroughly evaluated. Uteroplacental function is the key factor in nutritional interchange between mother and infant. Any compromise of maternal vascular supply to the placenta will alter its function and have an adverse influence on fetal growth (34).

Maternal hypertension is a significant cause of placental insufficiency and growth retarded infants (35). Relative hypotension caused by use of diuretics may further decrease placental blood flow and compromise fetal development (34). Heart disease can influence nutrient supply to the fetoplacental unit and limit oxygen supply to the fetus and thereby adversely affect fetal growth (36).

Diabetes mellitus is one of the most common metabolic disorders associated with pregnancy (37). It is an even more significant problem in the American Indian population. The nutritional requirements of the pregnant woman with diabetes mellitus follow the Recommended Dietary Allowances which would be used for the non-diabetic. In addition to adequate nutrition, exercise is particularly important in the pregnancy of the diabetic. It is important to carefully evaluate diet and insulin therapy before an exercise routine is established.

It is helpful for the pregnant diabetic to regularly perform self-blood glucose monitoring. In a group of pregnant women who participated in a study by Fairman (38), very good control of insulin levels was maintained when self-testing was performed on a routine basis.

Clinical tests must always be analyzed with consideration of the implications of previously diagnosed chronic diseases and disorders and with attention to detection of previously unidentified chronic conditions. Certain illnesses such as liver or renal diseases, may be associated with significant decreases in serum proteins and albumin and in clinical tests may not necessarily indicate inadequate nutrition (36). Nutritional analysis must therefore always include consideration of possible distortion of clinical test results due to chronic conditions. Problems of chronic diseases may be further

compounded by drugs administered to control acute conditions as some drugs adversely affected fetal development (39) (40).

Smoking

Statistics show that 22-28% of American women smoke during pregnancy (41). Cigarette smoking is known to be associated with reduced prepregnancy weight, weight gain during pregnancy, and birth weight (42). Regular smokers produce babies who weight approximately 200 g less than non-smokers. The probability of low birth weight is directly proportional to daily cigarette consumption (43). In addition to low birth weight, infants born to mothers who smoke demonstrate smaller head circumference and are shorter than babies born to non-smokers (42). Cigarette smoking increases fetal and neonatal mortality by increasing the frequency of three disorders including abruptio placentae, placenta previa, and major congenital malformations (44) (45).

Placenta previa is related to the number of years a woman smokes. These three disorders do not decrease in smokers as pregnancy weight gains increase. This indicates that increasing the food intake of pregnant women who smoke may not protect fetuses against these disorders (46).

Nilson, Sagen, Kim, and Bergsjø (47) reported the effects of smoking on hemoglobin levels and how this relates to birthweight. Smoking causes an increase in the concentration of hemoglobin in the mother's blood which in turn may hinder the blood's nutrient-carrying capacity to the fetus and may interfere with uteroplacental circulation. This study offers a partial explanation for the decreased

birthweight of infants born to women who smoke. This situation may be improved, however, in subsequent pregnancies if the mother curtails or refrains from smoking. Similarly, Wainright's study showed a decrease in birthweight for women who did not smoke in their first pregnancy but smoked in their second pregnancy, although there is a general tendency toward increased birthweight with each successive pregnancy.

In a study done by Wainright (48), women whose smoking habits had changed between their first and second pregnancy were surveyed. For women who smoked during their first pregnancy but ceased smoking for their second pregnancy, there was a significant increase in birthweight. This suggests that the influence of smoking on birthweight of subsequent children is not irreversible if smoking is discontinued.

Whether pregnancy is a deterrent to smoking even after the baby is born was the subject of a study performed by Hickner, Westenberg, and Dittenbir (41). This study showed that although pregnancy should offer a woman an incentive to stop smoking the opposite of this appears to be true. Pregnancy was not indicated to be a powerful motivator to stop smoking during pregnancy and presented even less motivation for long term cessation. While pregnancy does seem to be a motivator to cut down on smoking, there is a definite need for further research on this subject.

Alcohol

The use of alcohol during pregnancy is now known to have adverse effects on the fetus. To quantify alcohol intake during pregnancy, drinking is classified as heavy, moderate, or rare, depending upon the number of drinks. One drink is defined as 0.5 ounce of pure alcohol

One drink is defined as 0.5 ounce of pure alcohol and is equivalent to the alcohol content of 12 ounces of beer, 4 ounces of wine, or 1.2 ounces of 80-proof liquor.

Heavy intake is defined as more than 45 drinks per month or more than five drinks on any single occasion. Moderate intake is more than one drink per month, but less than 45 drinks per month, and never five or more drinks on any single occasion. Rare intake is less than one drink per month and never five or more drinks on any single occasion (49).

It has been estimated that 2 to 13 percent of women in their child bearing years drink heavily (49). Alcohol abuse may be directly related to the development of fetal alcohol syndrome (FAS) in the infant. Fetal alcohol syndrome includes a combination of facial features, growth deficiency, and mental retardation observed in children of alcoholic mothers (50). This term was first coined in 1973 (49). Research has shown that drinking of alcohol during pregnancy may cause a whole spectrum of effects, of which FAS is on the far end of the scale. Though the infant may not have all of the features of FAS, particular features of the condition have been observed in children of moderate drinkers. Children with FAS are usually small at birth and grow poorly thereafter.

Diagnosis of fetal alcohol syndrome requires the presence of one abnormality in each of three categories: craniofacial abnormalities, developmental problems, and central nervous system dysfunction. The incidence of fetal alcohol syndrome in the United States is about one in 750 live births. Among some American Indian tribes, however, the rate may be as high as 20 per 1000 live births (49).

The disposition of ethanol between maternal blood and amniotic fluid was studied by Brien, Loomis, Tranmer, and McGrath (50). They discovered that even when the concentration of ethanol, after a drinking binge, was lowered in the maternal blood supply, the concentration still may remain high in the amniotic fluid. It is, therefore, conceivable that following an occurrence of binge-type drinking the fetus may be exposed to a very high concentration of ethanol for longer than would be expected, if testing the mother's blood is used as a reference. This might be one reason for the high incidence of spontaneous abortions in women who have three or more drinks a day (51).

Alterations of central nervous system function have also been observed in children damaged prenatally by maternal ethanol ingestion. Effects include mental retardation as well as early developmental delay, tremulousness, hyperactivity, short attention span, and brain wave alterations. Severity of these effects can be related to the timing and amount of maternal alcohol ingestion during pregnancy and appear to be permanent in the more severely affected child (52).

Another aspect is the effect of the father's drinking habits on the health of the fetus (10). Many male alcoholics are impotent, sterile, or have sperm that is grossly abnormal. Abnormal sperm can result in defective offspring, regardless of optimal health of the mother and minimized presence of risk factors during pregnancy.

Prenatal Care

A major reason for high fetal mortality rate is lack of prenatal care. The incidence of preterm birth, stillbirth, neonatal and peri-

natal mortality, and low birthweight tend to be higher for women who receive no or little prenatal care. A low income family is less likely to be able to afford private prenatal care. Because of this, they may not have the benefit of the personal attention that a private physician, who is being paid for his or her services, would be able to give. However, in cases where there would otherwise be no prenatal care, the prenatal clinic is certainly a viable alternative to the low income family. Showstack, Budetti, and Minkler (53) reported that prenatal care has a substantial association with higher birthweight when the number and timing of prenatal visits was taken into account.

Income is not the only variable influencing the amount of prenatal care received. Joyce, Diffenbacher, Greene, and Sorokin (54) undertook a study to determine the barriers women face in seeking prenatal care. The findings of this study show that while external factors such as transportation, child care, and finances, are very real problems, the majority of women fail to seek prenatal care due to non-economic related internal factors such as fear, depression, and denial of pregnancy, especially in younger women. There is a strong correlation between age and the trimester in which prenatal care is initiated with first trimester care occurring more frequently in women ages 25 to 29, and less frequently in ages 12 to 14 (23).

The greater the number of risk factors present during a pregnancy, the greater the need for early, continuous, high quality prenatal care. Adolescents experiencing their first pregnancy during the ages 16 to 19 who receive early prenatal care present no increased perinatal risk when compared to women of similar socioeconomic backgrounds (23).

Historical Development of Health Services to American Indians

American Indians have made great strides in the area of health in recent years. This is, in a large part, due to the work of health professionals in the Indian Health Service, a branch of the United States Public Health Service, which constitutes the primary health care provider for American Indians.

The Indian Health Service serves as an instrument of the Federal Government in providing a comprehensive health program to more than half a million American Indian and Alaska Native people. The goal of the Indian Health Service is to raise the health status of these people to the highest level possible (55).

The Indian Health Service operates nationwide 50 hospitals, 99 health centers (including 23 school health centers), and several hundred other health stations in pursuit of its goal. The facilities are strategically located for convenience of the Indian communities to provide access to as complete a range of health services as is possible with available resources (56).

While tremendous advances in health status have been realized, such advances must be viewed within the context of a population which was finally recognized as a rapidly dying population. From the advent of European immigration, the North American continent literally saw entire Indian groups reduced to nonexistance and others diminished to remnants of their original size. Not until 1832 did Congress appropriate funds for Indian health, a modest $12,000 (8).

By 1940, national funding had grown to $5,088,000 for Indian health care. Annual funding for health care had increased to 24.5

million by 1955, when the responsibility for health care for American Indians and Alaska natives was transferred by Congress from the Bureau of Indian Affairs to a special Division of Indian Health in the Public Health Service of the U.S. Department of Health, Education, and Welfare, on July 1, 1955 (8).

With special emphasis directed to environmental improvement, control of communicable diseases, and maternal and child health care, the Indian Health Service has seen advancements as few federal agencies ever accomplish (57). In 1956, the Nutrition and Dietetics Branch of the Indian Health Service (IHS) was formed and charged with monitoring and improving food preparation practices and diet planning in Indian hospitals. Efforts were directed primarily to training and education of food service employees. Recently this branch of IHS has been separated into two separate branches with the Dietetics Branch continuing its efforts in institutional food management and the Nutrition Branch directing its efforts toward patient education.

American Indian Food Habits

In the past, the American Indians roamed the plains in search of food and water. Today, however, the majority of Indians live on reservations or in rural communities (58). This change from a transient lifestyle to a sedentary existence has brought about many changes in the American Indian (59). Due to the vast complexity of Tribes and the disparity between Tribes in the degree of assimilation with the dominant society, it is difficult to generalize about food habits. There is however, a tendency toward high carbohydrate intake and a definite preference for frying as the method of food preparation (60).

The use of many of the native foods commonly used in the past have been replaced by fast foods and convenience foods. Today, bologna sandwiches, potato chips, and carbonated beverages are common food items (59). The result has been that the incidence of obesity with all of the accompanying disorders has dramatically increased. Health professionals have made attempts to intervene in the dietary related health problems of the American Indian yet their advice is not often heeded. The statement by Bertlyn Boslyn, Chief, Nutrition and Dietetics Branch of IHS, in a 1959 publication of the Journal of the American Dietetic Association, remains true today.

> One of the basic difficulties in the improvement of Indian health is the lack of understanding by many of the Indians of the elementary principles of good health and how these may be applied to everyday living (61).

Nutritional Assessment Methods

A nutritional assessment involves five components: 1) a full medical history and dietary assessment; 2) a full physical examination, with added attention to clinical signs of nutritional deficiency; 3) nutritional anthropometry; 4) biochemical assessment; and 5) a more experimental component, which includes immunological assessment, measurement of body composition, and other tests (62).

A dietary assessment involves two steps. First, a record of the amounts and types of food the patient ate must be obtained and, secondly this data must be translated into nutrients using food composition tables. The clinical assessment entails a visual examination of the patient. Observation of general appearances and examinations of various parts of the body which are particularly vulnerable to

nutritional deficiencies present indications of nutritional health.

Nutritional anthropometry includes determination of skinfolds and measurement of height and weight. Normally a better estimation of body fat is obtained when more than one skinfold thickness is taken and the findings are averaged.

Biochemical assessment is the first indication of a nutritional deficiency. This is particularly important as levels of some nutrients in the blood may be severly depleted before any clinical signs of nutrient deficiency are observed. Tests which measure levels of elements in the body are becoming more sophisticated. Ultrasonography, underwater weighing, and xenon dilution are all methods of measuring body water. Radioactivity is used to measure body potassium. Protein malnutrition which may interfere with the immune system is detected by skin tests and T-cell function tests.

The assessment of a pregnant woman's nutritional status is more critical than that of the non-expectant woman because of the vulnerability to nutritional deprivation during pregnancy (63). Unfortunately, nutritional assessment at this time in a woman's life is also the most difficult. The simplest means of accomplishing this is to have knowledge of prepregnancy weight, and weight gain since conception. This presents a problem, however, when prepregnancy weight is unknown because the total weight gained cannot be readily determined. An alternative method of determining appropriate weight gain has been devised. It is a reference table showing appropriate weight for height and week of pregnancy. A formula was derived for determining prepregnancy weight when this information is not available. This table and formula are provided in Appendix A.

CHAPTER III

METHODS AND PROCEDURES

The knowledge that nutritional risk factors are common to American Indian women throughout their childbearing years lead to concern about dietary habits of women attending an Indian Health Service prenatal clinic in Oklahoma. This study was designed to test four hypotheses which were developed to determine the adequacy of the diets, as well as any risk factors, which may have an impact on the health of the mother or the unborn infant of a group of pregnant women attending the Lawton Indian Hospital Prenatal Clinic. (See map in Appendix B)

Research Design

A survey with descriptive statistical methods was developed to study the adequacy of dietary intakes and the incidence of risk factors among women attending the prenatal clinic. The research design included interviews of subjects, medical records review, and literature review. A 24-hour dietary recall was administered to obtain information on nutrient intake of subjects. A questionnaire was developed and administered to obtain information on income, chronic health problems, personal habits, dietary information, and general health. The researcher was allowed to review the patients' medical charts for clinical data.

Subjects

The 70 subjects were those women who attended the prenatal clinic during the period June 3-21, 1985, when the study was conducted. The women were primarily of American Indian descent, however, some were non-Indian women married to American Indians who also qualify for the prenatal program of the Indian Health Service. Upon discharge from the hospital following delivery of the child, non-Indian mothers lose their eligibility for services at an Indian Health Service hospital.

Data Collection

Data was collected by the researcher from June 3, through June 21, 1985, at the Lawton PHS Indian Hospital during the regularly scheduled prenatal clinic. Clinical data were collected from medical charts. Information on risk factors, chronic health problems, dietary practices, and a 24-hour dietary recall was obtained by interviews of subjects.

Instrument

The research instrument includes three components: (1) clinical data; (2) risk factors, dietary information, and general health; and (3) a 24-hour dietary recall. Clinical data was obtained through review of the patients' medical charts.

The interview instrument was developed to allow the researcher to obtain from the subjects dietary information with added questions to acquire information on risk factors, demographic data, and nutritional practices, and a 24-hour dietary recall (Appendix C).

Procedures

Permission for conduct of the study was obtained from the Oklahoma City Area Office, Oklahoma City Area Indian Health Service. The Indian Health Service indicated approximately 90 women would utilize the clinic during the period of the study. The researcher interviewed 71 subjects and completed interviews of 70 subjects. One interview was not completed due to misplacement of the patient's medical record.

Clinical data were obtained from medical charts, and specifically from clinical notes of attending physicians, laboratory reports, and the standard form HRSA-800-1, Medical Record-Prenatal and Pregnancy. (Appendix D) Interviews were conducted on an individual basis in a private conference area. The purpose of the study was explained to each prenatal patient and they were asked if they wished to participate in the study. Of 71 patients who were approached, all agreed to serve as subjects of the study. In the interview, each statement from the questionnaire was read aloud by the researcher. If any statement was not fully understood, it was explained or expanded. The answers provided by the subjects, as well as any additional comments related to the study, were entered on the questionnaire by the researcher. All participants cooperated fully in answering the questions. During the interview, a recall of all food and beverages consumed over the past 24-hour period was obtained. To aid the patients in recalling portion sizes, portioned plastic food models and standard sized eating and drinking utensils were used for illustration.

Data Analysis

Hypothesis 1 was tested by a binomial test, and hypothesis 3 was tested by employing a t-test. For the statistical analysis of the diets, the 24-hour recalls were first analyzed using the Health Aide computer program (64). This program gives an amount of each nutrient consumed and the percentage of the RDA. This information was then coded into the computer program, PC-File (65), in order to compare all 70 diets with the RDA. The coded data were analyzed using the Statistical Analysis System (SAS) (66).

In analyzing hypotheses 2 and 4, chi-square tests were employed. This is a test used to compare two data sets which have no numerical value.

CHAPTER IV

RESULTS AND DISCUSSION

This study is to determine the incidence of risk factors, as well as to evaluate the nutritional status of patients attending the prenatal clinic at the Lawton Indian Hospital in Lawton, Oklahoma. Collected data concerning clinical data, risk factors, dietary information, and general health, along with a 24-hour recall are analyzed here, with significant associations made.

Demographic and Clinical Information

Tribe

There were a variety of tribes participating in this study, with the majority being Kiowa (27.14%) and Comanche (20%), two of three local resident tribes of Lawton, Oklahoma. Non-Indians comprised 17.14% of the group. A total of 20 tribes were represented in the survey. This mixture of tribes is consistent with tribal usage of IHS facilities throughout Oklahoma. (Appendix E)

Age

Figure 2 shows the age distribution of the participants. The subjects ranged in age from 15 to 38 years. Fifteen of the subjects were between ages 15 and 18. The largest percentage of the participants

were between ages 18 through 26. This is to be expected as these are normally considered to be the child-bearing years.

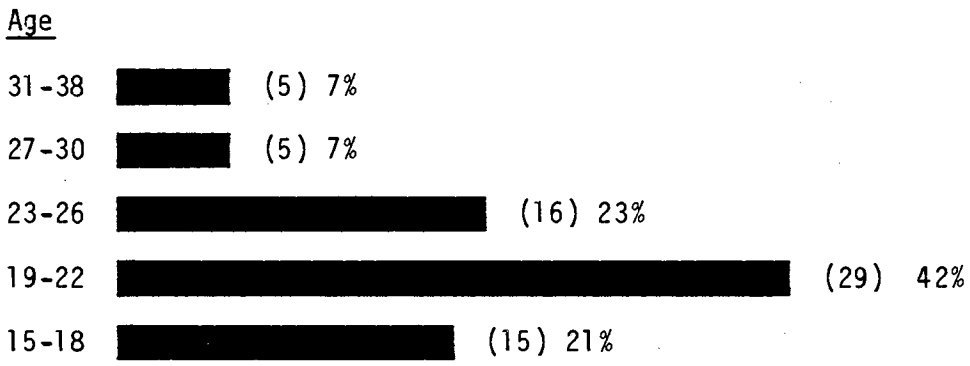


FIGURE 2. Age Distribution of Group

Height-Weight

Subjects ranged in height from 59 inches to 70 inches. Sixty-five subjects recalled prepregnancy weights; five subjects were not able to recall prepregnancy weights. Of the 65 respondents, 27, or 41.54%, were overweight prior to conception.

Diagnosis of overweight was made when the patient presented a prepregnancy weight 20% above the standard weight for height set forth by the Committee on Dietary Allowances, Food and Nutrition Board, National Research Council in 1980. Diagnosis of underweight was made when the patient presented a prepregnancy weight 10% below this standard.

Three subjects were 10% underweight and no subjects were 20% underweight. Of the 65 subjects, 24 or 36.9% were within the normal range of weight for height. Ten or 15.4% were 10% overweight; and 28 or 43.1% were 20% overweight. A total of 38 or 58.5% of the 65 subjects were diagnosed as overweight. The following table illustrates the distribution of weight of subjects.

TABLE II

DISTRIBUTION OF PREPREGNANCY WEIGHT OF SUBJECTS

	Underweight			Within Normal	Overweight		
	20%	10%	Total	Weight for Height	10%	20%	Total
*n	0	3	3	24	10	28	38

*n = number of subjects

Hemoglobin and Hematocrit Levels

Hemoglobin and hematocrit levels were compared to normal ranges established by the Interdepartmental Committee on Nutrition for National Defense in 1963 (67). Ten percent of the women had hemoglobin levels at or below 10.0 grams/100 ml of blood; 60.01% had levels between 10.1-12.0 ml; and 34.30% had levels between 12.1-16.0. Ten percent of the women did not have a reported hemoglobin. Twenty percent had hematocrit levels from 27.6-33.0; 25.75% had levels from 33.1-36.0; and 43.01% had levels from 36.1-42.1. Three percent had no reported hematocrit.

TABLE III

COMPARISON OF SUBJECTS HEMOGLOBIN AND HEMATOCRIT
WITH NORMAL RANGE FOR EACH TRIMESTER

TRIMESTER	HEMOGLOBIN			HEMATOCRIT		
	Low	Normal Range	High	Low	Normal Range	High
I	<11.0	11.0-14.4	>14.4	<38	38-42	> 42
*n	0	2	0	1	1	0
II	<10.5	10.5-12.9	>12.9	<35	35-27	>37
*n	3	10	6	4	8	7
III	<10.5	10.5-12.9	>12.9	<33	33-34	>34
*n	9	19	13	7	8	31

*n = # of subjects

A total of 19 subjects exhibited a low hematocrit and/or hemoglobin level. An examination of the dietary intake of the 19 subjects who demonstrated low hemoglobin and/or low hematocrit levels showed that two received 100% or more of the RDA for calories; three received 100% or more of the RDA for iron; and ten received 66% or less of the RDA for iron. The results of comparison of reported hemoglobin and hematocrit levels of the subjects with normal ranges for the three trimesters of pregnancy are shown in Table IV.

Month of Pregnancy

Two of the 70 subjects were in the first trimester of pregnancy, 20 (28.59%) were in the second trimester, and 46 (65.73%) were in the third trimester. The two first trimester patients were in their 12th week of pregnancy. This was the first prenatal visit for 17 subjects, all in their second or third trimester. Clinical data on week of pregnancy was not available for two patients.

Gravidity

This was the first pregnancy for 25 or 35.71% of the subjects and the second pregnancy for 23 or 32.86% of the subjects. It was the third pregnancy for 12 or 17.14% of the subjects and the fourth pregnancy for seven of the subjects. It was the fifth pregnancy for two of the subjects and the eleventh pregnancy for one subject.

Medication

The majority of the subjects (95.71%) were taking no medications other than prenatal vitamins at the time of the study. Three subjects

claimed to be taking the following medications: ampicillin, insulin, and Tylenol.

General Health

Test Results

The only specific test result obtained was the diabetes screen which is administered on a routine basis to prenatal patients. The Indian Health Service considers 120 to be an acceptable glucose level for this test. The one subject who claimed to be a diabetic was the only subject to exceed this amount with a glucose level of 147. Blood pressure was not recorded on the questionnaire by the researcher.

Chronic Health Problems

Subjects were asked to identify any chronic health problems. Of the 70 subjects, 68 responded and two provided no answer. Four of the 68 subjects claimed to have a previously diagnosed chronic illness.

Three claimed to have hypertension. This result cannot be substantiated due to the fact that the blood pressures of the subjects were not recorded by the researcher.

As stated earlier, one subject claimed to be a diabetic, a finding which is relatively low for this size of Indian group studied (55). Sixty-four or 91.43% did not claim to have any chronic conditions. This is comparatively low compared to the national average of 23.8%.

Other Health Problems

The prenatal clinical records showed no other health problems for the subjects, other than the one subject who claimed to be diabetic.

Subjects were asked how they generally felt. One subject said she felt excellent, 40 said they felt good, 23 said they felt fair, and six said they felt poor. When asked to identify any specific complaints, 19 or 27.14% of the subjects indicated that they experienced swelling, and 38 or 54.29% of the subjects indicated that they experienced morning sickness.

Risk Factors

Stillbirths, Miscarriages, and Abortions

A total of 15 or 21.43% of the subjects had experienced stillbirths, miscarriages, and abortions distributed as: three subjects with one prior stillbirth, six subjects with one prior miscarriage, one subject with one prior stillbirth plus two prior miscarriages, one subject with one prior stillbirth plus one prior abortion; one subject with one prior stillbirth plus one prior miscarriage, one subject with two prior miscarriages, and two subjects with one prior miscarriages plus one prior abortion. A total of 22 stillbirths, miscarriages, and abortions were reported by the group (Figure 3).

Income

Approximately 1/3 or 32.86% of the subjects claimed to have an annual family income of $3,000 or less. Of the subjects, 11.43% reported an income of $3,000-$5,000; 14.29%, an income of $5,000-$8,000; 14.29%, an income of $8,000-$10,000; 17.14%, an income of $10,000-$15,000; and 10%, an income of $15,000-$20,000.

Use of Tobacco

It was found that 25 or 35.71% of the 70 subjects were smokers with 12.87% of the subjects smoking five or less cigarettes per day, 18.58% of the subjects smoking from 6-15 cigarettes per day, and 5.72% of the subjects smoking over a pack a day. This compares with 1980 data which indicates that 32.6% of the total population are smokers. None of the subjects indicated use of smokeless tobacco (Figure 4).

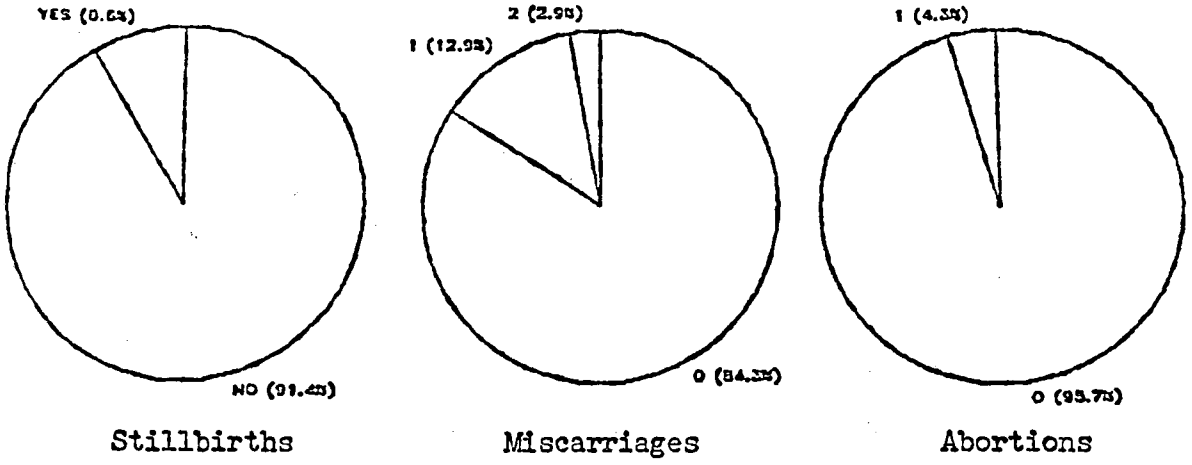


Figure 3. Percentage of Subjects With Stillbirths, Miscarriages, Abortions

Alcohol

Only two subjects indicated consumption of alcohol. Four indicated that they had suspended consumption upon the discovery of their pregnancy. This finding is probably a conservative estimate of the alcohol consumption of this population. The rate of alcohol usage

among the general population is estimated at 67% (68). The rate of alcohol usage among American Indian populations has been estimated to be as high as 90% (69).

Percentages of Subjects with Risk Factors

Analysis of risk factors was performed using a binomial test. Table IV shows the results of this analysis.

TABLE IV

PERCENTAGES OF SUBJECTS WITH SIGNIFICANT RISK FACTORS AND STATISTICAL RESULTS

Factor	Rate-General population	No.	%	T	PR /T/
Overweight at * Start of Pregnancy	30.0%	27	42	6.74	.0001
Stillbirths/Miscarriages	.0147%	11	16	3.59	.0006
Chronic Conditions	23.8%	4	6	2.04	.0447
Smoking *	32.6%	25	36	6.19	.0001
Alcohol Usage	67.0%	6	9	2.54	.0321

*Significant at $p < .0001$

Upon analysis of five risk factors, the researcher failed to reject the hypothesis for three factors: chronic conditions, smoking and alcohol usage; and rejected the hypothesis for two factors: overweight at start of pregnancy and prior fetal death. The researcher, therefore, failed to reject H_1.

Dietary Practices

Nutritional Supplements

The majority of the subjects, 94.29%, were taking a multi-vitamin and mineral supplement prescribed by the physicians in the prenatal clinic and issued by the hospital pharmacy. Only one subject claimed that her vitamins were self-prescribed. Four subjects indicated that they used no vitamin and mineral supplements as usage caused nausea.

Meals Eaten Away From Home

A total of 32 or 45.71% of the subjects claimed to consume all their daily meals at home; 27 or 38.57% consumed one meal away from home daily; and 11 or 15.72% consumed more than two meals away from home daily. The relatively high percentage of women consuming all of their meals at home is probably to be expected, considering the proportion of subjects with low incomes.

Method of Cooking

Subjects were asked, "How do you usually cook your food?" Frying was the predominant method of cooking employed by the subjects with 40, or 57.14%, cooking in this manner. Of the subjects, three indicated baking their food, two boiled their food, and four broiled their food. The remaining 28.52% used a variety of combinations of cooking methods. The high incidence of frying, as a method of cooking, is not surprising among this population (60).

Pica

Six subjects claimed to employ this practice and indicated eating large quantities of ice. This finding might have been due to the summer weather as the study was conducted in June.

Allergies

The only allergy indicated by two of the subjects was lactose-intolerance. This is a very common disorder among American Indians (58).

Differences in Eating

Of the subjects studied, 64.29% or 45 claimed to have changed their eating habits since the beginning of their pregnancy. Twenty-five or 35.71% indicated eating more in quantity; eight indicated eating less in quantity; 13 subjects indicated eating more often; three, less often; and 20 indicated improving their nutritional habits in several different ways, which are listed in the Appendix E. (Most of the subjects chose two or more of the blanks.)

Snacking

The majority of the subjects, 78.57%, snacked or ate between meals up to two times a day. The remaining 21.43% snacked three to five times a day. Table VI shows the usual foods consumed by participants for snacks. The foods contained in the category of "other snack foods" are listed in Appendix E.

TABLE V

FOOD ITEMS EATEN BY PARTICIPANTS
FOR BETWEEN MEAL SNACKS

Food Item	No.	Percent
Other	38	51
Fruit	37	53
Coke or other carbonated beverage	17	24
Chips	12	17
Cookies	10	14
Cheese or cheese food	10	14
Candy	7	10
Milk	7	10
Fruit juice or fruit drink	6	8

24 Hour Recall

t-Tests were performed to determine the relationships between the adequacy of the subjects' diets and the Recommended Dietary Allowances. These tests were performed using the Statistical Analysis System (SAS).

The subjects' nutritional intake was compared to 100% and two-thirds of the RDA, in order to give a more accurate picture of the adequacy of their diets. Two-thirds of the RDA is the usual benchmark measure of adequacy for intakes of nutrients for a healthy population, however, in pregnancy the requirements for all nutrients are increased.

The Health Aide computer program employed in this study provided the amount of each nutrient consumed by each of the women, as well as the percentage of the RDA for each nutrient. These values do not include the prenatal multivitamin and mineral supplement, Filibon-FA, that the majority of the subjects were taking. The contents of these vitamins are shown in Table VI.

The amounts of each nutrient and percentage of the RDA provided by the computer for each subject are listed in Appendix F.

Table VII shown an average of the diets of all 70 subjects, how this compares with two-thirds, as well as 100% of the RDA, and the results of the t-tests. The intakes of folacin, calcium, magnesium, zinc, and polyunsaturated fat were found to be significantly deficient in comparison to two-thirds the RDA, whereas in comparison to 100% of the RDA, calories, cabohydrates, fiber, unsaturated fats, vitamin B_6, folacin, phosphate, potassium, calcium, magnesium, zinc, and polyunsaturated fat were all found to be deficient. Sodium was found to be the nutrient consumed in the highest amount.

TABLE VI

CONTENTS OF PRENATAL VITAMINS

Vitamin or Mineral	Amount
Vitamin A	8000 Units
Vitamin D_2	400 Units
Vitamin E	30 Units
Vitamin C	60 mg
Folic Acid	1 mg.
Vitamin B_1	1.7 mg
Vitamin B_2	2 mg
Niacin	20 mg
Vitamin B_6	4 mg
Vitamin B_{12}	8 g mcg
Calcium	250 mg
Iodine	150 g mcg
Iron	45 mg
Magnesium	100 mg

There is some question as to the actual adequacy of the subjects' iron intake. The RDA for iron during pregnancy is not stated in the literature simply because it is impossible to attain by eating the habitual American diet. Most physicians recommend a daily supplement of 30-60 mg of iron, therefore, the subjects' intake of 19.56 mg is far from an adequate daily intake of iron.

Due to the fact that five vital nutrients were found to be deficient when the analysis of diets was compared to both 100% and 2/3 of the RDA, the researcher rejected H_3.

Comparison of Nutritional Habits and Other Factors

The comparison of nutritional habits with clinical data, age, and income was tested utilizing chi-square tests. This is a statistical test used to compare variables which are expressed as qualitative values. A total of 135 chi-square tests were performed using the Statistical Analysis System (SAS) (Appendix G). Table VIII shows the nine significant relationships which were determined by chi-square tests.

Due to the fact that only six significant associations were found when comparing dietary practices with clinical data and only three significant associations were found when dietary practices were compared with age and income; the research failed to reject H_2 and H_4.

TABLE VII

COMPARISON OF SUBJECTS NUTRIENT INTAKE WITH 100% AND 2/3 RDA
AND STATISTICAL SIGNIFICANCE LEVELS

Nutrient	Mean Intake	100% RDA	% of 100% RDA	T	PR T	2/3% RDA	% of 2/3 RDA	T	PR T
Calories	2169	2400	90.4%	-2.02	.0470	1600	135.6%	3.78	.0003
Carbonydrates	250.33	345	73%	-4.46	.0001	230	109%	0.95	.3451
Total Protein	82.84	74	111.9%	0.84	.4057	49.3	168%	5.85	.0001
Fiber	4.55	6	76%	-2.49	.0152	4	114%	1.04	.2996
Saturated Fat	33.01	27	122%	2.33	.0225	18	183%	6.34	.0001
Unsaturated Fat	47.22	51	93%	-2.61	.0110	34	139%	2.64	.0101
Fats	93.53	77	122%	1.74	.0866	51.33	182%	6.27	.0001
Cholesterol	320.18	301	106%	0.41	.6833	200.67	160%	3.93	.0002
Vitamin A	1189.12	1000	118.9%	1.45	.1524	666.7	178.4%	3.19	.0021
Thiamin(Vitamin B_1)	2.17	1.5	144.7%	2.75	.0075	1	217%	4.99	.0001
Riboflavin(Vitamin B_2)	2.29	1.6	143.1%	2.98	.0039	1.07	214%	5.35	.0001
Vitamin B_{12}	4.33	4	108.2%	0.47	.6370	2.67	162.2%	2.81	.0055
Folacin	324.48	800	40.6%	-10.07	.0001	533.3	60.8%	-4.44	.0001
Niacin	26.17	16	163.6%	3.80	.0003	10.67	245%	5.89	.0001
Vitamin C	112.78	80	141%	2.10	.0393	53.3	211.6%	3.81	.0003
Vitamin E	17.05	10	170.5%	2.18	.0328	6.67	255.6%	3.28	.0016
Sodium	2557.48	2213	116%	3.36	.0013	1475.33	173%	6.30	.0001
Phosphorous	1239.75	1200	103.2%	-4.47	.0001	800	155%	1.65	.1040
Potassium	2349.58	3789	62%	-3.70	.0004	2526	93%	1.79	.0773
Calcium	860.09	1200	71.7%	-11.81	.0001	800	107.5%	-4.13	.0001
Iron	19.56	18	108.7%	0.53	.5958	12	163%	3.15	.0024
Magnesium	238.50	450	53%	-9.75	.0001	300	79.5%	-2.85	.0053
Zinc	12.01	20	60.05%	-8.70	.0001	13.3	90.3%	-3.02	.0036
Polyunsaturated Fats	13.32	25	53%	-10.01	.0001	16.67	80%	-4.01	.0002

TABLE VIII

SIGNIFICANT ASSOCIATIONS BETWEEN CLINICAL DATA, AGE, INCOME AND DIETARY PRACTICES

Clinical Data	Factor Showing Correlation	Statistics		
		X^2	df	P
Hemoglobin	Number of Daily Snacks	3.955	1	0.0467
Hemoglobin	Fruit	4.573	1	0.0325
Hematocrit*	Fruit Juice	4.261	1	0.0390
Weight	Number of Daily Snacks	6.091	1	0.0136
Weight at Start of Pregnancy	Number of Daily Snacks	8.693	1	0.0032
Age	Number of Daily Snacks	5.644	1	0.0175
Diabetes Screen*	Candy	4.775	1	0.0289
Income	Fruit	5.692	1	0.0170
Income*	Chips	3.802	1	0.0512

Note: Data shown for significant findings only ($p < .05$)

*Over 20 percent of the cells have expected counts less than 5. Table is so sparse that Chi-Square may not be valid.

CHAPTER V

SUMMARY AND RECOMMENDATIONS

Summary

A study was undertaken to determine the incidence of risk factors as well as the adequacy of the diets of patients attending the prenatal clinic at the Lawton Indian Hospital in Lawton, Oklahoma. Seventy subjects, aged 15 to 38, attending the prenatal clinic during the period June 3-21, 1985, were interviewed.

The objectives of the study were: (1) to determine whether or not the incidence of risk factors during pregnancy for this population will be greater than the incidence for the general population. (2) To determine the association between nutritional habits including: number of times the subjects snacked daily, foods used for snacks, meals eaten away from home, method of cooking, incidence of pica, use of nutritional supplements and clinical data including: hemoglobin, hematocrit, height, weight, weight at start of pregnancy, diabetes screen results, incidence of morning sickness. (3) To determine the adequacy of dietary intakes of subjects as compared to the Recommended Dietary Allowances. (4) To determine the association between nutritional habits including: number of times the subjects snacked daily, foods used for snacks, meals eaten away from home, method of cooking, incidence of pica, taking of nutritional supplements and age, income.

A 24-hour dietary recall and a questionnaire were administered to the subjects. For statistical analysis of the diets, the 24-hour recalls were first analyzed using the Health Aide computer program, a program that gives an amount of each nutrient consumed and the percentage of the RDA. This information was then coded into a computer program, the PC-file, in order to compare all 70 diets with the RDA. t-Tests and chi-square tests were also utilized.

Analysis of the incidence of risk factors indicated that 27 or 41.53% of the 65 subjects responding to the questionnaire were overweight at the start of pregnancy. In the general population 30% of women are overweight at the start of pregnancy.

Fifteen or 21.43% of the 70 subjects had previously experienced one or a combination of stillbirths, miscarriages, or abortions. A total of six stillbirths, 13 miscarriages, and three abortions were identified with six women experiencing multiple such incidences. The researcher found prior fetal death to be signficantly greater than that for the general population.

Four subjects identified chronic health problems, one reporting diabetes mellitus, and three reporting hypertension. In all, 6% of the subjects reported a chronic condition as compared to the general populations' chronic condition rate of 23.8%.

Smoking in various degrees was reported by 25 or 35.71% of the 70 subjects. The rate of smoking for the general population is 32.6%.

Six subjects or 9% reported they used alcohol. The rate of alcohol use for the general population is 67%. In summation, three of the five risk factors included in the analysis of H_1 were rejected. Therefore, the researcher rejected H_1.

The relationships between nutritional habits and clinical data were analyzed using chi-square tests. Of the 135 chi-square tests performed, six were found to be significant, therefore, the researcher failed to reject H_2.

Nutrient intake was analyzed and identified as being adequate or inadequate. Dietary intake was considered adequate if the subject received 100% or more of the RDA for pregnancy as set forth by the National Research Council. The researcher also analyzed the subjects' nutritional intake as compared to 2/3 of the RDA, as this is considered to be adequate for a normal healthy population. Subjects were found to be deficient at 2/3 of the RDA for five nutrients including folacin, calcium, magnesium, zinc, and polyunsaturated fats. Subjects were deficient in receiving 100% of the RDA for energy, folacin, calcium, magnesium, and zinc. The nutrient found to be consumed in the highest amount was sodium.

Although all literature indicated iron to be the greatest nutrient of deficiency in pregnant women, analysis of dietary intake showed the mean intake of iron to be 108% of the RDA and 163% of 2/3 of the RDA. It is presumptuous, however, to consider the subjects intake of 19.56 mg as adequate, due to the fact that the increased demands for iron during pregnancy are so great that it is impossible for them to be met by the habitual American diet. The average physician recommends an iron supplement ranging from 30-60 mg per day. The RDA simply states 18+ mg as the requirement for iron, therefore, the subjects' iron intake was actually not adequate (5).

The researcher found that five vital nutrients were deficient after comparing 24 nutrients with 2/3 of the RDA, and again, in

comparison to 100% of the RDA, therefore, the researcher rejected H_3. Three significant associations were found out of 49 comparisons of nutritional habits with age and income. The researcher, therefore, rejected H_4.

Testing of Hypotheses

This study included four null hypotheses which were tested by chi-squares and t-tests. The researcher failed to find significant associations and, therefore, failed to reject two hypotheses: H_2, and H_4. Significant associations were found in two hypotheses necessitating rejection of H_1 and H_3 wherein five vital nutrients were found deficient after comparing 24 nutrients with 2/3 of the Recommended Dietary Allowances and three of the five risk factors were found to be signficantly different from the general population.

Recommendations

The researcher made a number of recommendations for further research. The first recommendation is to assess other factors and to improve the questionnaire to include information on marital status, education level, employment status, use of non-prescription drugs, use of caffiene, and week of initiation of prenatal care. Information on marital status and educational and employment status would provide valuable information to professionals in the human services field for planning of programs and efforts to assist families with limited earning power. Disadvantaged families would be identified by case and by rate. Likewise, this information would be valuable to outreach and

preventive programs planning such as maternal and child health, immunization, early childhood diseases, child safety, parenting, etc.

Study of the use of caffiene and non-prescription drugs would provide additional valuable information to health care providers in identifying the level of usage and assessing the impact as well as planning programs accordingly. The week of initiation of prenatal care would be compared to other factors to further assess risk to the mother and the fetus.

It is recommended that a study be made of the outcome of a group of high risk pregnancies followed in an IHS prenatal clinic. Such a study would allow assessment of the effectiveness of the prenatal clinic, and comparison of the outcome of pregnancy with the level of risk identified in the prenatal clinic program.

It is recommended that a comparable study be made of a group receiving free services for prenatal care, i.e., a local public health department, and a group receiving prenatal care from a private physician, and the findings compared with a group served in an IHS prenatal clinic. This would allow: comparison of groups in all areas of the study, identification of differences in risk factors, and identification of similarities. This information would be available for assessment of possible integration of program efforts between IHS and other providers of free services. And, finally, it sould show whether or not free services recipients are more at risk than those who pay for services.

A final recommendation is to conduct a similar study using a weeklong diet history. This would provide a broader range of information relative to dietary habits.

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APPENDIXES

APPENDIX A

ESTIMATED WEIGHT-FOR-HEIGHT OF ADULT WOMEN DURING PREGNANCY, WEEK OF PREGNANCY

TABLE IX

EXPECTED WEIGHT-FOR-HEIGHT OF ADULT WOMEN DURING PREGNANCY

Prepregnant Wt cm	Prepregnant Wt kg	WEEK OF PREGNANCY 13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
140	48.6	49.5	49.8	50.1	50.5	50.8	51.1	51.5	51.8	52.1	52.4	52.8	53.1	53.4	53.8	54.1	54.4	54.8	55.1	55.4	55.7	56.1	56.4	56.7	57.1	57.4	57.7	58.0	58.4
141	49.2	50.0	50.3	50.7	51.0	51.3	51.7	52.0	52.4	52.7	53.0	53.4	53.7	54.0	54.4	54.7	55.0	55.4	55.7	56.0	56.4	56.7	57.0	57.4	57.7	58.0	58.4	58.7	59.0
142	49.7	50.5	50.9	51.2	51.6	51.9	52.2	52.6	52.9	53.3	53.6	53.9	54.3	54.6	54.9	55.3	55.6	55.9	56.3	56.6	57.0	57.3	57.6	58.0	58.3	58.6	59.0	59.3	59.7
143	50.2	51.1	51.4	51.8	52.1	52.5	52.8	53.1	53.5	53.8	54.2	54.5	54.8	55.2	55.5	55.9	56.2	56.5	56.9	57.2	57.6	57.9	58.2	58.6	58.9	59.3	59.6	60.0	60.3
144	50.8	51.6	52.0	52.3	52.7	53.0	53.4	53.7	54.0	54.4	54.7	55.1	55.4	55.8	56.1	56.5	56.8	57.1	57.5	57.8	58.2	58.5	58.9	59.2	59.6	59.9	60.2	60.6	60.3
145	51.3	52.2	52.5	52.9	53.2	53.6	53.9	54.3	54.6	55.0	55.3	55.7	56.0	56.3	56.7	57.0	57.4	57.7	58.1	58.4	58.8	59.1	59.5	59.8	60.2	60.5	60.9	61.2	61.6
146	51.8	52.7	53.1	53.4	53.8	54.1	54.5	54.9	55.2	55.5	55.9	56.2	56.6	56.9	57.3	57.6	58.0	58.3	58.7	59.0	59.4	59.7	60.1	60.4	60.8	61.1	61.5	61.8	62.2
147	52.4	53.2	53.6	54.0	54.3	54.7	55.0	55.4	55.7	56.1	56.4	56.8	57.2	57.5	57.9	58.2	58.6	58.9	59.3	59.6	60.0	60.4	60.7	61.1	61.4	61.8	62.1	62.5	62.8
148	52.9	53.8	54.1	54.5	54.9	55.2	55.6	55.9	56.3	56.7	57.0	57.4	57.7	58.1	58.5	58.8	59.2	59.5	59.9	60.2	60.6	61.0	61.3	61.7	62.0	62.4	62.8	63.1	63.5
149	53.4	54.3	54.7	55.1	55.4	55.8	56.1	56.5	56.9	57.2	57.6	58.0	58.3	58.7	59.0	59.4	59.8	60.1	60.5	60.9	61.2	61.6	61.9	62.3	62.7	63.0	63.4	63.7	64.1
150	53.9	54.9	55.2	55.6	56.0	56.3	56.7	57.1	57.4	57.8	58.2	28.5	58.9	59.3	59.6	60.0	60.4	60.7	61.1	61.5	61.8	62.2	62.6	62.9	63.3	63.6	64.0	64.4	64.7
151	54.5	55.4	55.7	56.1	56.5	56.9	57.3	57.6	58.0	58.4	58.7	59.1	59.5	59.8	60.2	60.6	60.9	61.3	61.7	62.1	62.4	62.8	63.2	63.5	63.9	64.3	64.6	65.0	65.4
152	55.0	55.9	56.3	56.7	57.1	57.4	57.8	58.2	58.6	58.9	59.3	59.7	60.1	60.4	60.8	61.2	61.5	61.9	62.3	62.7	63.0	63.4	63.8	64.2	64.5	65.9	65.3	65.6	66.0
153	55.5	56.5	56.9	57.2	57.6	58.0	58.4	58.7	59.1	59.5	59.9	60.3	60.6	61.0	61.4	61.8	62.1	62.5	62.9	63.3	63.6	64.0	64.4	64.8	65.1	65.5	65.9	66.3	66.7
154	56.1	57.0	57.4	57.8	58.2	58.5	59.0	59.3	59.7	60.1	60.4	60.8	61.2	61.6	62.0	62.3	62.7	63.1	63.5	63.9	64.2	64.6	65.0	65.4	65.8	66.1	66.5	66.9	67.3
155	56.6	57.6	57.9	58.3	58.7	59.1	59.5	59.9	60.3	60.6	61.0	61.4	61.8	62.2	62.6	62.9	63.3	63.7	64.1	64.5	64.9	65.2	65.6	66.0	66.4	66.8	67.2	67.5	67.9
156	57.1	58.1	58.5	58.9	59.3	59.7	60.0	60.4	60.8	61.2	61.6	62.0	62.4	62.8	63.1	63.5	63.9	64.3	64.7	65.5	65.5	65.9	66.2	66.6	67.0	67.4	67.8	68.2	68.6
157	57.2	58.6	69.0	59.4	59.8	60.2	60.6	61.0	61.4	61.8	62.2	62.5	62.9	63.3	63.7	64.1	64.5	64.9	65.3	66.1	66.1	66.5	66.9	67.2	67.6	68.0	68.4	68.8	69.2
158	58.2	59.2	59.6	60.0	60.4	60.8	61.2	61.6	61.9	62.3	62.7	63.1	63.5	63.9	64.3	64.7	65.1	65.5	65.0	66.7	66.7	67.1	67.5	67.9	68.3	68.6	69.0	69.4	69.8
159	58.7	59.7	60.1	60.5	60.9	61.3	61.7	62.1	62.5	62.9	63.3	63.7	64.1	64.5	64.9	65.3	65.7	66.1	66.5	67.3	67.3	67.7	68.1	68.5	68.9	69.3	69.7	70.1	70.5
160	59.2	60.3	60.7	61.1	61.5	61.9	62.3	62.7	63.1	63.5	63.9	64.3	64.7	65.1	65.5	65.9	66.3	66.7	67.1	67.5	67.9	68.3	68.7	69.1	69.5	69.9	70.3	60.7	71.1
161	59.8	60.8	61.2	61.6	62.0	62.4	62.8	63.2	63.6	64.0	64.4	64.9	65.3	65.7	66.1	66.5	66.9	67.3	67.7	68.1	68.5	68.9	69.3	69.7	70.1	70.5	70.5	71.3	71.7
162	60.3	61.3	61.7	62.2	62.6	63.0	63.4	63.8	64.2	64.6	65.0	65.4	65.8	66.2	66.7	67.1	67.5	67.9	68.3	68.7	69.1	69.5	69.9	70.3	70.7	71.2	71.6	72.0	72.4
163	60.8	61.9	62.3	62.7	63.1	63.5	63.9	64.4	64.8	65.2	65.6	66.0	66.4	66.8	67.2	67.7	68.1	68.5	68.9	69.3	69.7	70.1	70.5	71.0	71.4	71.8	72.2	72.6	73.0
164	61.4	62.4	62.8	63.3	63.7	64.1	64.5	64.9	65.3	65.7	66.2	66.6	67.0	67.4	67.8	68.2	68.7	69.1	69.5	69.9	70.3	70.7	71.2	71.6	72.0	72.4	72.8	73.2	73.6
165	61.9	62.9	63.4	63.8	64.2	64.6	65.0	65.5	65.9	66.3	66.7	67.0	67.6	68.0	68.4	68.8	69.3	69.7	70.1	70.5	70.9	71.3	71.8	72.2	72.6	73.0	73.4	73.9	74.3
166	62.4	63.5	63.9	64.3	64.8	65.2	65.6	66.0	66.5	66.9	67.3	67.7	68.2	68.6	69.0	69.4	69.8	70.3	70.7	71.1	71.5	72.0	72.4	72.8	73.2	73.7	74.1	74.5	74.9
167	63.0	64.0	64.5	64.9	65.3	65.7	66.2	66.6	67.0	67.4	67.9	68.3	68.7	69.2	69.6	70.0	70.4	70.9	71.3	71.7	72.1	72.6	73.0	73.4	73.8	74.3	74.7	75.1	75.6
168	63.5	64.6	65.0	65.4	65.9	66.3	66.7	67.2	67.6	68.0	68.4	68.9	69.3	69.7	70.2	70.6	71.0	71.5	71.9	72.3	72.8	73.2	73.6	74.0	74.5	74.9	75.3	75.8	76.2
169	64.0	65.1	65.5	66.0	66.4	66.8	67.3	67.7	68.2	68.6	69.0	69.5	69.9	70.3	70.6	71.2	71.6	72.1	72.5	72.9	73.4	73.8	74.2	74.7	75.1	75.5	76.0	76.5	76.8
170	64.5	65.6	66.1	66.5	67.0	67.4	67.8	68.3	68.7	69.2	69.6	70.0	70.5	70.9	71.3	71.8	72.2	72.7	73.1	73.5	74.0	74.4	74.8	75.3	75.7	76.2	76.6	77.9	77.5
171	65.1	66.2	66.6	67.1	67.5	68.0	68.4	68.8	69.3	69.7	70.2	70.6	71.0	71.5	71.9	72.4	72.8	73.2	73.7	74.1	74.6	75.0	75.5	75.9	76.3	76.8	77.2	77.7	78.1
172	65.6	66.7	67.2	67.6	68.1	68.5	69.0	69.4	69.8	70.3	70.7	71.2	71.6	72.1	72.5	73.0	73.4	73.8	74.3	74.7	75.2	75.6	76.1	76.5	77.0	77.4	77.8	78.3	78.7
173	66.1	67.3	67.7	68.2	68.6	69.1	69.5	70.0	70.4	70.9	71.3	71.8	72.2	72.6	73.1	73.5	74.0	74.4	74.9	75.3	75.8	76.2	76.7	77.1	77.6	68.0	78.5	78.9	79.4
174	66.7	67.8	68.3	68.7	69.2	69.6	71.1	70.5	71.0	71.4	71.9	72.3	72.8	73.2	73.7	74.1	74.6	75.0	75.5	75.9	76.4	76.8	77.3	77.7	78.2	78.7	79.1	79.6	80.0
175	67.2	68.3	68.8	69.3	69.7	70.2	70.6	71.1	71.5	72.0	72.4	72.9	73.4	73.8	74.3	74.7	75.2	75.6	76.1	76.5	77.0	77.5	77.9	78.4	78.8	79.3	79.7	80.2	80.6
176	67.7	68.9	69.3	69.8	70.3	70.7	71.2	71.6	72.1	72.5	73.0	73.5	73.9	74.4	74.9	75.3	75.8	76.2	76.7	77.1	77.6	78.1	78.5	79.0	79.4	79.9	80.4	80.8	81.3
177	68.3	69.4	69.9	70.4	70.8	71.3	71.7	72.2	72.7	73.1	73.6	74.0	74.5	75.0	75.4	75.9	76.4	76.8	77.3	77.8	78.2	78.7	79.1	79.6	80.1	80.5	81.0	81.5	81.9
178	68.8	70.0	70.4	70.9	71.4	71.8	72.3	72.8	73.2	73.7	72.4	74.6	75.1	75.6	76.0	76.5	77.0	77.4	77.9	78.4	78.8	79.3	79.8	80.2	80.7	81.2	81.6	82.1	82.6
179	69.3	70.5	71.0	71.4	71.9	72.4	72.8	73.3	73.8	74.3	74.7	75.2	75.7	76.1	76.6	77.1	77.6	78.0	78.5	79.0	79.4	79.9	80.4	80.8	81.3	81.8	82.2	82.7	83.2
180	69.8	71.0	71.5	72.0	72.5	72.9	73.4	73.9	74.4	74.8	75.3	75.8	76.2	76.7	77.2	77.7	78.1	78.6	79.1	79.6	80.0	80.5	81.0	81.5	81.9	82.4	82.9	83.4	83.8

*This table has been revised to use the formula PPWT = 0.53 x height in cm - 25.55 but still assumes a gain of 1.7% in first 13 wk and a gain of 18.3% spread uniformly over the next 27 wk. I.C. 0.678%/wk.
Derived from 2.965 x height in inches - 56.28 to give weight in lb

$$\frac{(2.95 \times 0.454)}{2.54} = 0.5299 \quad (56.28 \times 0.454) = 25.56$$

Gveri, Jutsum, Sorhaindo: Anthropometric assessment of nutritional status in pregnant women: a reference table of weight-for-height by week of pregnancy. Am. J. Clin. Nutr. 1982. (Source)

APPENDIX B

LAWTON INDIAN HOSPITAL

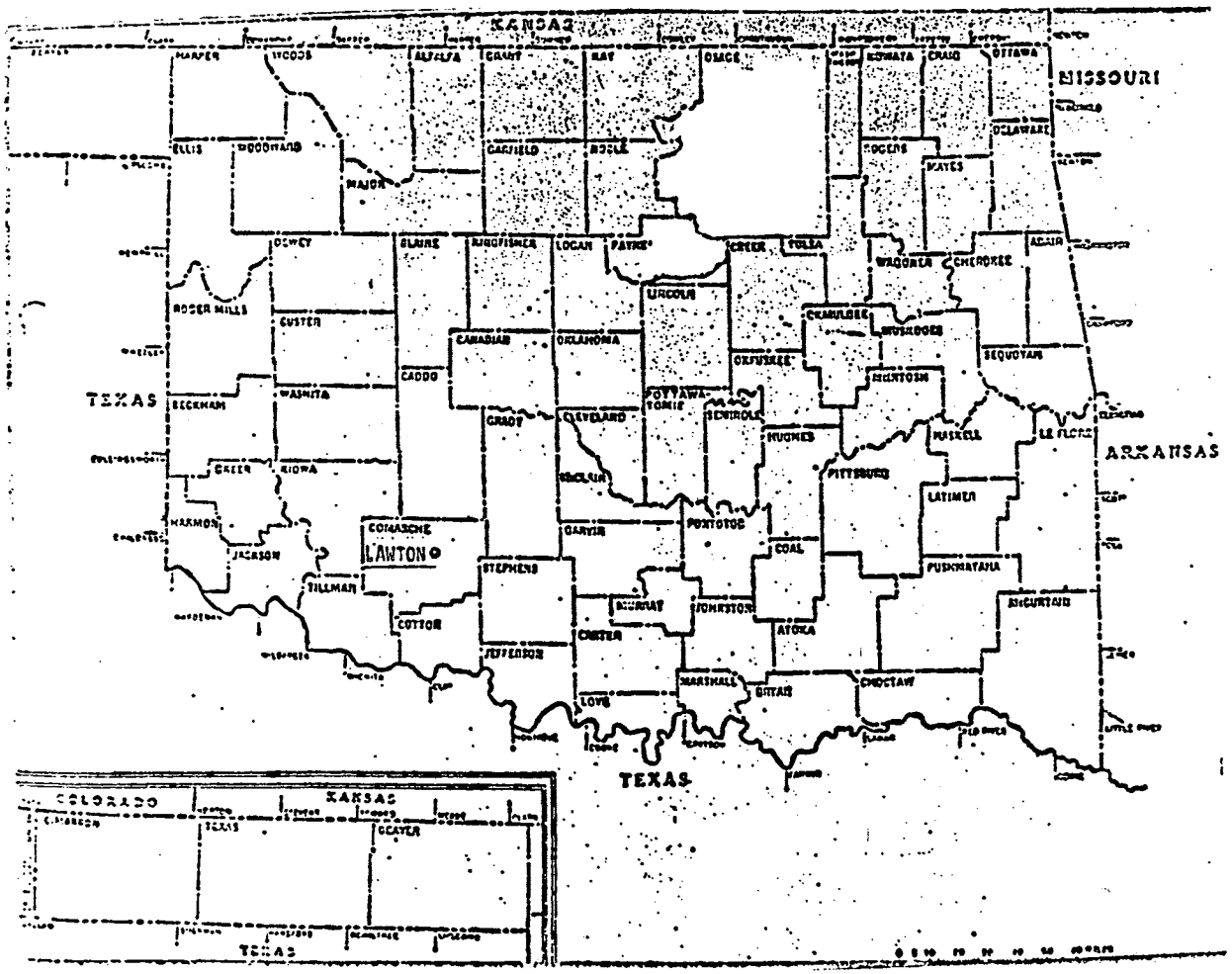

Figure 4. Location of Lawton Indian Hospital, Lawton, Oklahoma

APPENDIX C

INTERVIEW QUESTIONNAIRE

Subject No._____

THE INTERVIEW QUESTIONNAIRE

Today's Date_____

CLINICAL DATA

1. Tribe_____
2. Age_____
3. Height_____
4. Weight_____
5. Weight at Start of Pregnancy_____
6. Hemoglobin_____
7. Hematocrit_____
8. Month of Pregnancy_____
9. Number of Pregnancies_____
10. Any other Health Problems_____
11. Any and all Medications_____

    _____
12. Any other Test Results_____

    _____
13. Any stillbirths or miscarriages_____

RISK FACTORS

14. Income level:

_____1) $0-3000

_____2) $3000-5000

_____3) $5000-8000

_____4) $8000-10000

_____5) $10000-15000

_____6) $15000-20000

_____7) $20000-30000

15. Do you have any chronic health problems? Such as?

_____1) Diabetes

_____2) Hypertension

_____3) Malabsorption

_____4) Arthritis

_____5) Urinary problems

_____6) Heart Problems

16. Do you smoke? _____yes _____no

If yes, # of packs or # of cigarettes per day?_____

17. Do you use smoke-less tobacco? _____yes _____no

18. Do you imbibe alcohol? _____yes _____no

How Often?_____

DIETARY INFORMATION

19. Do you take nutritional supplements? _____yes _____no

Who prescribed the supplements?_____

_____

20. Which do you use:

_____1) multiple

_____2) B complex

_____3) iron

_____4) calcium

_____5) vitamin A

_____6) vitamin C

_____7) vitamin E

_____8) other

21. How many meals do you eat away from home each day?_____

22. Describe how you usually cook your food?_____

_____

23. Do you eat non-food items? _____yes _____no

If yes, what are they?_____

24. Do you have any food allergies _____yes _____no

If yes, with what foods?_____

25. Do you eat differently now then before pregnancy?_____yes _____no

_____1) more in quantity

_____2) less in quantity

_____3) more often

_____4) less often

_____5) different foods

_____6) other

26. How often do you snack(eat between meals) a day?_____

27. What are your usual snack foods?

_____1) Coke or other carbonated beverage

_____decaffeinated _____with caffeine

_____diet _____regular

_____2) Chips

_____3) Cookies

_____4) Candy

_____5) Fruit

_____6) Fruit juice or _____ Fruit drink

_____7) Milk

_____8) Cheese or _____ Cheese food

_____9) Other

GENERAL HEALTH

28. Have you had morning sickness? _____yes _____no

Describe how you feel and/or how long it lasts?_____

_____

29. Have you had any other pregnancy related complications?_____

_____

30. How do you generally feel?

_____1) Excellent

_____2) Good

_____3) Fair

_____4) Poor

24 HOUR DIETARY RECALL

Was your food intake yesterday what you usually eat?_____yes _____no

	FOOD	PREPARATION	SERVING
Awaken to 10 am			
10 am to 2 pm			
2 pm to 6 pm			
6 pm to bedtime			

usual seasonings:

APPENDIX D

PRENATAL RECORD

MEDICAL RECORD — PRENATAL AND PREGNANCY

Patient's Name	Age	Race/Tribe	Father of Baby	Age

Address/Location	Home Phone	Work Phone

Pregnancy History: Grav: Para: | Term: Premature: Ab's: Living: Stillbirth Neonatal Death:

GESTATIONAL AGE ASSESSMENTS:

1. Menstrual History: LNMP: _____ Certain? _____
2. Use of BCP's Yes: _____ No: _____ Last Taken? _____
3. Clinical Evaluation
   - Pregnancy Test: Date _____ Gestation by LMP _____ wks
   - First Uterine Size Estimate: Date _____ Gestation by LMP _____ wks; Size by Examination _____ wks
   - Uterus at Umbilicus: Date _____ Gestation by LMP _____ wks
   - Quickening: Date _____ Gestation by LMP _____ wks
   - FHT First Heard by Doppler: Date _____ Gestation by LMP _____ wks
   - FHT First Heard by Fetoscope: Date _____ Gestation by LMP _____ wks
   - Ultrasound Scan: Date _____ Gestational Age _____ Sonar EDC _____; Date _____ Gestational Age _____ Sonar EDC _____
4. Predicted EDC _____
   Reliability: Poor _____ Good _____ Excellent _____

LABORATORY FINDINGS

INITIAL LAB SCREEN DATE	TEST	RESULT	ADDITIONAL LAB DATA DATE	TEST	RESULT
	Hct/Hgb				
	Type & Rh				
	Antibodies				
	Serology				
	Rubella				
	UA: Micro				
	C&S				
	Pap				
	G.C.				
	Diabetes Screen				
	PPD				

PRENATAL RISK ASSESSMENT

REPRODUCTIVE HISTORY		ASSOCIATED CONDITIONS		PRESENT PREGNANCY	
Age Under 16 or Over 35	1	Chronic Renal Disease	2	Bleeding: Less than 20 wks	1
Parity 0 or Over 5	1	Diabetes: Gestational	2	After 20 wks	1-3
Habitual Abortion	1	Class B or Higher	3	Anemia: Hematocrit < 34	1
Infertility	1	Cardiac Disease	1-3	Prolonged Pregnancy > 42 wks	3
P P Hem, Manual Removal	1	Major Gyn Surgery, Cone Bx.	2	Hypertension, Preeclampsia	2-3
Previous Baby > 9 lbs. (4050 gms)	1		1-3	Premature Rupt. Membranes	3
< 5½ lbs. (2500 gms)	2		1-3	Polyhydramnios	2
Prev. Toxemia, Hypertension	1		1-3	Small for Dates	3
Previous Cesarean Section	3	Cigarette Smoking	1	Multiple Pregnancy	3
Prev. Stillbirth or N N D	3	Alcohol Use	1-2	Breech > 36 weeks	3
Prolonged Labor (> 30 Hrs.) or Difficult Delivery	1	Teratogen/Drug Exposure	1-2	Rh Negative. Sensitized?	1-3
	1	Significant Social Problem	1-2	Genital Herpes, active	3
	1		1-2	Excessive or inadeq. wt. gain	1-2
					1-3

Low Risk = Score 0-2 Medium Risk = Score 3-6 Extreme Risk = Score 7

OBSTETRIC PROGNOSIS AND MANAGEMENT PLAN FOR AT RISK CONDITIONS

L & D Tour: _____
Referrals: _____

PRENATAL FLOW RECORD

Date																	
Est. wks. gest. D/S	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/
WT. (Pre. Preg.)																	
Blood Pressure																	
Fundal Height																	
Position																	
Station																	
Fetal Heart: FS-DOP																	
Edema																	
UA: Prot/Gluc/Acet																	
Risk Reassessment																	
Provider Initials																	

Patient's Identification

Signature Code: Initials	Signature & Title

Other Information

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DH: ASC F13

APPENDIX E

INFORMATION ON SUBJECTS

TABLE X

INFORMATION ON SUBJECTS

PRE-NATAL INFORMATION

	TRIBE	AGE	HEIGHT	WEIGHT	WEIGHT AT START	HEMOGLOBIN
1001	COMANCHE	27	65.00	201.75	201.75	11.6
1002	KIOWA	26	67.50	144.001	150.00	11.6
1003	COMANCHE	23	64.00	198.00	170.00	11.3
1004	NAVAJO	23	68.50	185.00	155.00	10.9
1005	CHOCTAW	26	64.00	212.75	213.00	12.4
1006	KIOWA	29	69.50	137.50	117.00	12.0
1007	NON-INDIAN	24	68.00	118.00	114.00	14.1
1008	KIOWA	21	65.00	188.50	168.00	11.4
1009	COMANCHE	18	65.00	133.00	118.00	
1010	CHOCTAW	24	60.00	135.50	103.00	10.8
1011	COMANCHE	19	65.00	124.00		
1012	KIOWA	17	62.00	122.50	86.00	
1013	APACHE	38	63.00	260.25		13.0
1014	CREEK	21	67.00	267.50		11.0
1015	NON-INDIAN	24	65.00	130.00	111.00	12.5
1016	KIOWA	15	70.00	164.00	142.00	12.0
1017	KIOWA	18	64.00	139.50	128.00	11.0
1018	NON-INDIAN	23	64.00	155.50	148.00	14.0
1019	NON-INDIAN	18	68.00	146.75	135.00	12.3
1020	CHICKASAW	18	68.50	151.00	127.00	12.0
1021	NON-INDIAN	19	62.00	141.00	120.00	9.0
1022	NON-INDIAN	20	60.00	136.00	130.00	14.0
1023	COMANCHE/APACHE	34	67.00	215.50	191.00	10.0
1024	KIOWA	20	61.00	156.00	145.00	13.1
1025	KIOWA	20	66.50	171.50	167.00	11.7
1026	MES/APACHE	27	63.00	144.50		9.[illegible]
1027	CHICKASAW	20	69.00	231.25	248.00	11.4
1028	CADDO	19	66.00	176.25	170.00	11.5
1029	KIOWA	19	64.00	172.00	156.00	9.0
1030	COMANCHE	20	63.00	140.00	125.00	11.6
1031	KIOWA	22	61.00	183.00	187.00	10.0
1032	COMANCHE	26	67.00	200.75	178.00	13.0
1033	SEMINOLE	21	66.50	172.00	135.00	12.0
1034	CHEROKEE	16	67.00	201.25	180.00	9.0
1035	SEMINOLE/CREEK	23	62.00	138.50	130.00	13.9
1036	KIOWA	18	67.00	141.50	135.00	12.9
1037	ALASKAN	22	59.00	146.00	122.00	14.0
1038	OSAGE/KAW	20	68.00	169.25	148.00	10.9
1039	KIOWA	18	63.00	173.00	154.00	16.[illegible]
1040	NON-INDIAN	25	65.00	149.00	135.00	13.[illegible]
1041	KIOWA	20	66.00	185.50	170.00	14.0
1042	KIOWA	20	67.00	156.00	120.00	16.0
1043	COMANCHE	28	65.00	171.50	140.00	13.5
1044	COMANCHE	22	64.50	203.00	180.00	12.0
1045	CHEROKEE	21	66.00	165.50	129.00	14.0
1046	COMANCHE	15	68.00	144.00	116.00	13.0
1047	COMANCHE	22	63.00	147.00	140.00	13.2
1048	KIOWA/APACHE	17	65.00	118.00	116.00	
1049	COMANCHE/MES/APACHE	22	66.50	136.00	123.00	10.0
1050	KIOWA	21	64.00	142.00	120.00	
1051	NON-INDIAN	15	63.00	141.75	135.00	14.0
1052	NON-INDIAN	19	67.00	176.25	167.00	11.5
1053	COMANCHE	37	66.00	139.25	125.00	11.0
1054	CHOCTAW	36	62.75	186.50	180.00	12.0
1055	CREEK	26	64.00	224.50	175.00	11.0
1056	APACHE	23	63.00	159.00	130.00	9.0
1057	COMANCHE	17	64.00	133.50	115.00	8.0
1058	NON-INDIAN	21	65.50	151.00	135.00	13.0
1059	KIOWA	26	64.00	164.00	123.00	12.0
1060	COMANCHE	16	61.00	146.50	112.00	11.0
1061	WICHITA	19	64.00	155.75	105.00	16.0
1062	NON-INDIAN	22	62.00	181.50	135.00	
1063	KIOWA	25	67.00	148.75	140.00	12.0
1064	NON-INDIAN	18	67.00	125.50	120.00	11.9
1065	KIOWA	24	61.00	256.50	200.00	14.0
1066	KIOWA	22	64.00	183.00	145.00	10.0
1067	COMANCHE	19	65.00	173.75	158.00	12.0
1068	CHEROKEE	38	65.00	166.25	145.00	9.0
1069	DELAWARE	27	60.00	156.50	135.00	11.0
1070	CADDO/DELAWARE/SHAWNEE	19	63.50	168.25		

TABLE X (Continued)

	HEMATOCRIT	WEEK	NUMBER	PROBLEMS	MEDICINE	DIABETES SCREEN
1001	34.2	21	1		NONE	100
1002	33.5	26	3		NONE	76
1003	32.6	25	4		NONE	116
1004	31.4	22	2	NONE	NONE	88
1005	36.0	17	2	NONE	NONE	99
1006	36.0	25	2	NONE	NONE	74
1007	41.9	14	2	NONE	NONE	
1008	36.0	36	3	NONE	TYLENOL	100
1009	33.0	27	2	NONE	NONE	88
1010	37.0	37	3	NONE	NONE	93
1011	37.0	34	1	NONE	NONE	96
1012	32.0	41	1	NONE	NONE	
1013	38.0	33	11	NONE	NONE	104
1014	32.0	26	2	NONE	NONE	86
1015	35.0	24	2	NONE	NONE	89
1016	36.0	36	2	NONE	NONE	100
1017	35.0	37	1	NONE	NONE	99
1018	36.0	23	4	NONE	NONE	91
1019	36.0	30	1	NONE	NONE	71
1020	35.0	28	1	NONE	NONE	86
1021	31.0	38	2	NONE	NONE	90
1022	41.0	21	2	NONE	NONE	89
1023	35.0	29	5	NONE	INSULIN	147
1024	40.5	15	1	NONE	NONE	98
1025	35.3	12	1	NONE	NONE	90
1026	27.6	30	5	NONE	NONE	90
1027	41.0	16	1	NONE	NONE	102
1028	34.4	21	3	NONE	NONE	82
1029	35.0	23	2	NONE	NONE	86
1030	35.9	28	2	NONE	NONE	95
1031	35.0	23	3	NONE	NONE	88
1032	41.0	35	2	NONE	NONE	90
1033	38.0	35	2	NONE	NONE	102
1034	32.0	38	1	NONE	NONE	93
1035	41.2	25	3	NONE	NONE	
1036	38.5	15	3	NONE	NONE	87
1037	39.0	30	2	NONE	NONE	89
1038	33.0	30	4	NONE	NONE	83
1039	37.0	38	1	NONE	NONE	102
1040	38.0	36	2	NONE	NONE	
1041	33.0	26	1	NONE	NONE	79
1042	41.0	35	1	NONE	NONE	86
1043	40.0	37	1	NONE	NONE	101
1044	37.0	40	2	NONE	NONE	82
1045	39.0	37	1	NONE	NONE	79
1046	37.5	31	1	NONE	NONE	86
1047	40.5	14	2	NONE	NONE	101
1048		13	1	NONE	NONE	80
1049	34.0	16	3	NONE	NONE	83
1050			3	NONE	AMPICILLIN	72
1051	42.1	18	1	NONE	NONE	86
1052	38.0	25	1	NONE	NONE	85
1053	38.0	12	3	NONE	NONE	79
1054	37.0	23	4	NONE	NONE	77
1055	37.0	37	2	NONE	NONE	90
1056	32.0	31	3	NONE	NONE	74
1057	33.0	33	1	NONE	NONE	104
1058	38.0	35	2	NONE	NONE	85
1059	35.0	29	3	NONE	NONE	88
1060	34.0	37	1	NONE	NONE	112
1061	41.0	40	2	NONE	NONE	86
1062	33.0	35	1	NONE	NONE	104
1063	35.0	23	4	NONE	NONE	89
1064	35.8	18	2	NONE	NONE	73
1065	39.0	35	2	NONE	NONE	115
1066	37.0	34	1	NONE	NONE	73
1067	35.0	28	1	NONE	NONE	87
1068	33.0	28	4	NONE	NONE	98
1069	37.0	44	4	NONE	NONE	92
1070	34.5		1	NONE	NONE	78

TABLE X (Continued)

	STILLBORN	MISCARRIAGE	ABORTION	INCOME	CHRONIC	SMOKE	PACKS	CIGARETT
1001	0	0	0	$3,000.00		YES	0	15
1002	0	0	0	$3,000.00		YES	0	10
1003	1	0	0	$5,000.00	HYPERTENSION	YES	0	10
1004	0	0	0	$3,000.00	NONE	YES	0	10
1005	0	0	0	$8,000.00	NONE	NO	0	0
1006	0	0	0	$15,000.00	NONE	NO	0	0
1007	0	0	0	$8,000.00	NONE	YES	0	10
1008	0	0	0	$3,000.00	NONE	NO	0	0
1009	0	0	0	$3,000.00	NONE	NO	0	0
1010	0	0	0	$15,000.00	NONE	YES	0	10
1011	0	0	0	$3,000.00	NONE	NO	0	0
1012	0	0	0	$3,000.00	NONE	NO	0	0
1013	1	2	0	$20,000.00	NONE	YES	0	2
1014	0	0	0	$15,000.00	NONE	NO	0	0
1015	0	0	0	$5,000.00	NONE	NO	0	0
1016	0	1	0	$15,000.00	NONE	YES	0	10
1017	0	0	0	$8,000.00	NONE	NO	0	0
1018	0	1	0	$10,000.00	NONE	YES	0	8
1019	0	0	0	$8,000.00	NONE	NO	0	0
1020	0	0	0	$10,000.00	NONE	NO	0	0
1021	0	0	0	$10,000.00	NONE	NO	0	0
1022	1	0	1	$3,000.00	NONE	YES	0	7
1023	1	1	0	$20,000.00	DIABETES	NO	0	0
1024	0	0	0	$3,000.00	NONE	YES	0	3
1025	0	0	0	$3,000.00	NONE	NO	0	0
1026	1	0	0	$3,000.00	NONE	NO	0	0
1027	0	0	0	$3,000.00	HYPERTENSION	NO	0	0
1028	0	0	0	$5,000.00	NONE	NO	0	0
1029	0	0	0	$3,000.00	NONE	NO	0	0
1030	0	0	0	$10,000.00	NONE	NO	0	0
1031	0	1	0	$10,000.00	HYPERTENSION	YES	0	2
1032	0	0	0	$3,000.00	NONE	YES	0	5
1033	0	1	0	$5,000.00	NONE	NO	0	0
1034	0	0	0	$5,000.00	NONE	NO	0	0
1035	0	0	0	$15,000.00	NONE	NO	0	0
1036	1	0	0	$15,000.00	NONE	NO	0	0
1037	0	0	0	$3,000.00	NONE	NO	0	0
1038	0	2	0	$20,000.00	NONE	YES	0	10
1039	0	0	0	$5,000.00	NONE	NO	0	0
1040	0	0	0	$3,000.00	NONE	YES	1	0
1041	0	0	0	$20,000.00	NONE	NO	0	0
1042	0	0	0	$8,000.00	NONE	NO	0	0
1043	0	0	0	$3,000.00	NONE	NO	0	0
1044	0	0	0	$20,000.00	NONE	NO	0	0
1045	0	0	0	$15,000.00	NONE	YES	0	30
1046	0	0	0	$8,000.00	NONE	NO	0	0
1047	0	0	0	$3,000.00	NONE	NO	0	0
1048	0	0	0	$3,000.00	NONE	YES	0	1
1049	0	1	0	$20,000.00	NONE	NO	0	0
1050	0	0	0	$5,000.00	NONE	YES	0	3
1051	0	0	0	$8,000.00	NONE	YES	0	10
1052	0	0	0	$10,000.00	NONE	NO	0	0
1053	0	0	0	$15,000.00	NONE	NO	0	0
1054	0	0	0	$10,000.00	NONE	NO	0	0
1055	0	0	0	$3,000.00	NONE	NO	0	0
1056	0	0	0	$10,000.00	NONE	YES	0	1
1057	0	0	0	$15,000.00	NONE	YES	0	10
1058	0	0	0	$10,000.00	NONE	NO	0	0
1059	0	0	0	$8,000.00	NONE	NO	0	0
1060	0	0	0	$8,000.00	NONE	YES	0	1
1061	0	0	0	$8,000.00	NONE	YES	0	5
1062	0	0	0	$3,000.00	NONE	NO	0	0
1063	0	1	1	$20,000.00	NONE	NO	0	0
1064	0	0	0	$15,000.00	NONE	NO	0	0
1065	0	0	0	$5,000.00	NONE	NO	0	0
1066	0	0	0	$3,000.00	NONE	NO	0	0
1067	0	0	0	$15,000.00	NONE	NO	0	0
1068	0	1	0	$10,000.00	NONE	YES	0	6
1069	0	1	1	$15,000.00	NONE	YES	1	0
1070	0	0	0	$3,000.00	NONE	NO	0	0

TABLE X (Continued)

	SMOKELESS	ALCOHOL	HOW OFTEN	NUTRITIONAL SUPPLEMENT	WHO:RX	TYPE1	TYPE2
1001	NO	NO	USED TO	YES	DOCTOR	MULTIPLE	IRON
1002	NO	NO	NEVER	YES	DOCTOR	MULTIPLE	IRON
1003	NO	NO	USED TO	YES	DOCTOR	MULTIPLE	IRON
1004	NO	NO	NEVER	YES	DOCTOR	MULTIPLE	IRON
1005	NO	NO	NEVER	NO		NONE	NONE
1006	NO	NO	USED TO	YES	DOCTOR	MULTIPLE	IRON
1007	NO	YES	6 WINE/WK	YES	SELF	MULTIPLE	IRON
1008	NO	NO	NEVER	YES	DOCTOR	MULTIPLE	IRON
1009	NO	NO	NEVER	YES	DOCTOR	MULTIPLE	IRON
1010	NO	NO	NEVER	YES	DOCTOR	MULTIPLE	IRON
1011	NO	NO	NEVER	YES	DOCTOR	MULTIPLE	IRON
1012	NO	NO	NEVER	YES	DOCTOR	MULTIPLE	IRON
1013	NO	NO	NEVER	YES	DOCTOR	MULTIPLE	IRON
1014	NO	NO	NEVER	YES	DOCTOR	MULTIPLE	IRON
1015	NO	NO	NEVER	YES	DOCTOR	MULTIPLE	IRON
1016	NO	NO	NEVER	YES	DOCTOR	MULTIPLE	IRON
1017	NO	NO	NEVER	YES	DOCTOR	MULTIPLE	IRON
1018				YES	DOCTOR	MULTIPLE	IRON
1019	NO	NO	NEVER	YES	DOCTOR	MULTIPLE	IRON
1020	NO	NO	NEVER	YES	DOCTOR	MULTIPLE	IRON
1021	NO	NO	NEVER	YES	DOCTOR	MULTIPLE	IRON
1022	NO	NO	NEVER	YES	DOCTOR	MULTIPLE	IRON
1023	NO	YES	USED TO	YES	DOCTOR	MULTIPLE	IRON
1024	NO	NO	NEVER	YES	DOCTOR	MULTIPLE	IRON
1025	NO	NO	NEVER	NO			
1026	NO	YES	2/MONTH	NO			
1027	NO	NO	NEVER	YES	DOCTOR	MULTIPLE	IRON
1028	NO	NO	NEVER	YES	DOCTOR	MULTIPLE	IRON
1029	NO	NO	NEVER	YES	DOCTOR	MULTIPLE	IRON
1030	NO	NO	NEVER	YES	DOCTOR	MULTIPLE	IRON
1031	NO	NO	NEVER	YES	DOCTOR	MULTIPLE	IRON
1032	NO	NO	NEVER	YES	DOCTOR	MULTIPLE	IRON
1033	NO	NO	NEVER	YES	DOCTOR	MULTIPLE	IRON
1034	NO	NO	NEVER	YES	DOCTOR	MULTIPLE	IRON
1035	NO	NO	NEVER	YES	DOCTOR	MULTIPLE	IRON
1036	NO	NO	NEVER	YES	DOCTOR	MULTIPLE	IRON
1037	NO	NO	NEVER	YES	DOCTOR	MULTIPLE	IRON
1038	NO	NO	NEVER	YES	DOCTOR	MULTIPLE	IRON
1039	NO	NO	NEVER	YES	DOCTOR	MULTIPLE	IRON
1040	NO	NO	NEVER	YES	DOCTOR	MULTIPLE	IRON
1041	NO	NO	NEVER	YES	DOCTOR	MULTIPLE	IRON
1042	NO	NO	NEVER	YES	DOCTOR	MULTIPLE	IRON
1043	NO	NO	NEVER	YES	DOCTOR	MULTIPLE	IRON
1044	NO	NO	NEVER	YES	DOCTOR	MULTIPLE	IRON
1045	NO	NO	NEVER	YES	DOCTOR	MULTIPLE	IRON
1046	NO	NO	NEVER	YES	DOCTOR	MULTIPLE	IRON
1047	NO	NO	NEVER	YES	DOCTOR	MULTIPLE	IRON
1048	NO	NO	NEVER	YES	DOCTOR	MULTIPLE	IRON
1049	NO	NO	NEVER	YES	DOCTOR	MULTIPLE	IRON
1050	NO	NO	NEVER	YES	DOCTOR	MULTIPLE	IRON
1051	NO	NO	NEVER	YES	DOCTOR	MULTIPLE	IRON
1052	NO	NO	NEVER	NO			
1053	NO	NO	NEVER	YES	DOCTOR	MULTIPLE	IRON
1054	NO	NO	NEVER	YES	DOCTOR	MULTIPLE	IRON
1055	NO	NO	NEVER	YES	DOCTOR	MULTIPLE	IRON
1056	NO	NO	NEVER	YES	DOCTOR	MULTIPLE	IRON
1057	NO	NO	NEVER	YES	DOCTOR	MULTIPLE	IRON
1058	NO	NO	NEVER	YES	DOCTOR	MULTIPLE	IRON
1059	NO	NO	NEVER	YES	DOCTOR	MULTIPLE	IRON
1060	NO	NO	NEVER	YES	DOCTOR	MULTIPLE	IRON
1061	NO	NO	NEVER	YES	DOCTOR	MULTIPLE	IRON
1062	NO	NO	NEVER	YES	DOCTOR	MULTIPLE	IRON
1063	NO	NO	NEVER	YES	DOCTOR	MULTIPLE	IRON
1064	NO	NO	NEVER	YES	DOCTOR	MULTIPLE	IRON
1065	NO	NO	NEVER	YES	DOCTOR	MULTIPLE	IRON
1066	NO	NO	NEVER	YES	DOCTOR	MULTIPLE	IRON
1067	NO	NO	NEVER	YES	DOCTOR	MULTIPLE	IRON
1068	NO	NO	NEVER	YES	DOCTOR	MULTIPLE	IRON
1069	NO	NO	NEVER	YES	DOCTOR	MULTIPLE	IRON(EXTRA)
1070	NO	NO	NEVER	YES	DOCTOR	MULTIPLE	IRON

TABLE X (Continued)

	TYPE	A:HOME	C:FOOD	N:FOOD	N:F:TYPE	F:ALLERGY	F:ALLERGY
1001	CALCIUM	0	FRY	NO		NO	NO
1002	CALCIUM	0	FRIED	NO		NO	NO
1003	CALCIUM	2	FRIED	NO		NO	NO
1004	CALCIUM	0	BAKE OR FRY	NO		NO	NO
1005	NONE	0	BROIL OR STEAM	NO		NO	NO
1006	CALCIUM	1	BOIL	NO		NO	NO
1007	CALCIUM	0	FRIED OR BROIL	NO		NO	NO
1008	CALCIUM	0	BROIL OR BAKE	NO		NO	NO
1009	CALCIUM	1	FRIED	NO		NO	NO
1010	CALCIUM	0	FRIED	NO		NO	NO
1011	CALCIUM	1	FRIED	NO		NO	NO
1012	CALCIUM	2	FRIED	NO		NO	NO
1013	CALCIUM	0	BAKE OR BROIL	NO		YES	YES
1014	CALCIUM	1	FRIED	NO		NO	NO
1015	CALCIUM	0	BROILED	NO		NO	NO
1016	CALCIUM	3	FRIED	YES	ICE	NO	NO
1017	CALCIUM	0	FRIED	NO		NO	NO
1018	CALCIUM	1	FRIED	NO		NO	NO
1019	CALCIUM	0	BROILED	NO		NO	NO
1020	CALCIUM	3	FRIED	NO		NO	NO
1021	CALCIUM	0	BAKED	NO		NO	NO
1022	CALCIUM	1	FRIED	NO		NO	NO
1023	CALCIUM	1	FRIED	NO		NO	NO
1024	CALCIUM	3	FRIED	NO		NO	NO
1025		1	BOIL	YES	ICE	NO	NO
1026		0	FRIED	NO		NO	NO
1027	CALCIUM	1	BROILED	NO		NO	NO
1028	CALCIUM	1	FRIED	NO		NO	NO
1029	CALCIUM	1	FRIED	NO		NO	NO
1030	CALCIUM	1	FRIED	NO		NO	NO
1031	CALCIUM	1	FRIED OR BAKED	NO		NO	NO
1032	CALCIUM	0	FRIED OR BROIL	NO		NO	NO
1033	CALCIUM	0	FRIED	NO		NO	NO
1034	CALCIUM	1	FRIED	YES	ICE	NO	NO
1035	CALCIUM	1	BROILED	NO		NO	NO
1036	CALCIUM	0	FRIED	NO		NO	NO
1037	CALCIUM	0	FRIED	YES	ICE	NO	NO
1038	EXTRA CALCIUM	0	FRIED	NO		NO	NO
1039	CALCIUM	0	FRIED	NO		NO	NO
1040	CALCIUM	2	BROIL OR BAKE	NO		NO	NO
1041	CALCIUM	1	FRIED	NO		NO	NO
1042	CALCIUM	2	BAKED	NO		NO	NO
1043	CALCIUM	0	BAKE OR BROIL	NO		NO	NO
1044	CALCIUM	0	FRIED	NO		NO	NO
1045	CALCIUM	1	FRY, BAKE, BROIL	NO		NO	NO
1046	CALCIUM	2	FRIED	NO		NO	NO
1047	CALCIUM	1	FRY OR BOIL	NO		NO	NO
1048	CALCIUM	1	FRY, BAKE, BOIL	NO		NO	NO
1049	CALCIUM	1	FRIED	NO		NO	NO
1050	CALCIUM	0	FRIED	NO		NO	NO
1051	CALCIUM	1	FRIED	NO		NO	NO
1052		0	FRIED	NO		NO	NO
1053	CALCIUM	0	FRIED	NO		NO	NO
1054	CALCIUM	1	BOIL OR FRY	NO		NO	NO
1055	CALCIUM	0	BAKED	NO		NO	NO
1056	CALCIUM	1	FRIED	NO		NO	NO
1057	CALCIUM	1	FRIED	YES	ICE	NO	NO
1058	CALCIUM	2	FRY, BAKE, BROIL	NO		NO	NO
1059	CALCIUM	2	FRY OR BAKE	NO		NO	NO
1060	CALCIUM	0	FRIED	NO		NO	NO
1061	CALCIUM	0	FRIED	NO		NO	NO
1062	CALCIUM	0	FRY OR BAKE	NO		YES	YES
1063	CALCIUM	0	FRIED	NO		NO	NO
1064	CALCIUM	1	FRIED	NO		NO	NO
1065	CALCIUM	0	FRY OR BAKE	NO		NO	NO
1066	CALCIUM	1	FRIED	NO		NO	NO
1067	CALCIUM	0	BROIL OR FRY	NO		NO	NO
1068	CALCIUM	2	FRY OR BROIL	YES	ICE	NO	NO
1069	CALCIUM	0		NO		NO	NO
1070	CALCIUM	1	FRY OR BROIL	NO		NO	NO

TABLE X (Continued)

	WHAT	EAT:DIFF	DIFF1	DIFF2	DIFF3	DIFF4
1001		YES				
1002		YES		LESS		
1003		NO	MORE			
1004		YES		LESS		
1005		NO				
1006		YES	MORE			
1007		NO				
1008		YES				
1009		NO				
1010		NO				
1011		NO				
1012		YES	MORE			
1013	LACTOSE INTOLERANT	NO				
1014		YES		LESS		
1015		NO				
1016		YES	MORE			
1017		YES				
1018		YES	MORE			
1019		YES	MORE			
1020		NO				
1021		YES	MORE			
1022		NO				
1023		NO				
1024		YES	MORE		MORE OFTEN	
1025		YES				
1026		YES				
1027		YES	LESS			
1028		NO				
1029		YES		LESS		
1030		YES				
1031		YES	MORE		MORE OFTEN	
1032		NO				
1033		YES	MORE		MORE OFTEN	
1034		YES	MORE		MORE OFTEN	
1035		YES	MORE		MORE OFTEN	
1036		NO				
1037		YES	MORE		MORE OFTEN	
1038		YES	MORE			
1039		YES	MORE			
1040		YES		LESS	MORE OFTEN	
1041		YES				
1042		YES				
1043		NO				
1044		NO				
1045		YES				
1046		YES	MORE			
1047		YES				
1048		NO				
1049		YES		LESS		LESS OFTEN
1050		YES	MORE		MORE OFTEN	
1051		NO				
1052		NO				
1053		YES		LESS		LESS OFTEN
1054		YES		LESS		LESS OFTEN
1055		YES	MORE			
1056		YES	MORE		MORE OFTEN	
1057		YES	MORE		MORE OFTEN	
1058		NO				
1059		NO				
1060		YES				
1061		YES	MORE		MORE OFTEN	
1062	LACTOSE INTOLERANT	YES	MORE		MORE OFTEN	
1063		YES	MORE			
1064		YES				
1065		YES	MORE			
1066		NO				
1067		YES	MORE			
1068		NO				
1069		NO				
1070		NO				

TABLE X (Continued)

	DIFF5	DIFF6	HOW OFTEN SNACKS	USUAL SNACKS	USU:SNACK1	USU:SNACK2
1001	DIFF FOODS		0	PEPSI(W/CAFFEINE)	FRUIT	
1002			0			
1003			2	COKE(W/CAFFEINE)	COOKIES	
1004	LESS FATTENING		1	FRUIT	CARROTS	
1005			2	FRUIT	CARROTS	
1006	DIFF FOODS		1	FRUIT		
1007			2	COKE(W/CAFFEINE)	CHEESEFOOD	W/CRACKERS
1008	MORE VEGGIES		2	FRUIT/FRUIT DRINK	PEANUTBUTTER	SANDWICH
1009			4	COKE(W/CAFFEINE)	CANDY	FRUIT JUICE
1010			0	FRUIT, SOMETIMES		
1011			4	COKE(W/CAFFEINE)	FRUIT	CRACKERS
1012	DIFF FOODS		2	COKE(W/CAFFEINE)	CHIPS	FRUIT
1013			1	FRUIT, CHEESE FOOD		
1014	LESS FRIED		0			
1015			2	CHIPS/COOKIES/CANDY	FRUIT,	MILK-WHOLE
1016			3	COKE(WITH CAFFEINE)	CHIPS	COOKIES
1017	MORE NUTRITIOUS		1	FRUIT, CARROTS		
1018	DIFF FOODS		1	POPCORN, ICED TEA		
1019	MORE DAIRY		2	FRUIT, ICE CREAM		
1020			3	CHIPS,COOKIES,CANDY	FRUIT	MILK-WHOLE
1021	MORE NUTRITIOUS		2	FRUIT, CHEESE		
1022			4	FRUIT, VEGGIES		
1023			1	FRUIT JUICE, MILK (WHOLE)		BOLOGNA
1024			2	FRUIT, CHEESE FOOD	CRACKERS	
1025	DIFF FOODS		1	FRUIT		
1026	MORE MEAT, GREENS		1	ICE CREAM		
1027			1	FRUIT		
1028			1	COKE(DECAFFEINATED)	CANDY	
1029			1	PEANUT BUTTER/CRACK		
1030			2	COKE(WITH CAFFEINE)	CHIPS	PEANUTS
1031			1	COKE(WITH CAFFEINE)	CHIPS	CANDY
1032			1	FRUIT		
1033			3	COKE(WITH CAFFEINE)	CHIPS	FRUIT
1034			1	FRUIT		
1035			1	CRACKERS		
1036			1	COOKIES, FRUIT		
1037			3	FRUIT, POPSICLES		
1038			1	COOKIES	CUPCAKES	
1039			2	FRUIT, CRACKERS		
1040			0			
1041	MORE VEGGIES		1	CHEESE FOOD	CRACKERS	
1042	DIFF FOODS		5	FRUIT		
1043			2	FRUIT	CHEESE	
1044			2	CHIPS, CANDY		
1045	DIFF FOODS		3	MILK-WHOLE	SANDWICH	
1046			5	COOKIES, CANDY	FRUIT	
1047	MORE NUTRITIOUS		0			
1048			1	TOAST, CEREAL	PIZZA	
1049			1	COKE(WITH CAFFEINE)	CHIPS	
1050			2	FRUIT, MILK-WHOLE		
1051			1	PICKLES		
1052			1	NOODLES W/TOMATO SAU		
1053			0			
1054			1	FRUIT	CEREAL	CRACKERS
1055			2	COKE(WITH CAFFEINE)	CHIPS	COOKIES
1056			3	CHEESE FOODS	CRACKERS	
1057			5	FRUIT		
1058			1	COKE(WITH CAFFEINE)	CHIPS	
1059			4	COOKIES, FRUIT	FRUIT JUICE	MILK-WHOLE
1060	MORE FRUIT		1	FRUIT		
1061			2	PEANUT BUTT/JELLY S	ICE CREAM	
1062			0			
1063	DIFF FOODS		2	LEFTOVERS		
1064	MORE FRUIT		3	COKE(WITH CAFFEINE)	CUPCAKES	
1065			1	FRUIT		
1066			2	COKE(WITH CAFFEINE)	PEANUTS	
1067	MORE BOILED		3	FRUIT, FRUIT JUICE	CHEESE	
1068			2	CHEESE CRACKERS	PEANUT BUTTER	
1069			2	COKE(WITH CAFFEINE)	CHIPS	COOKIES
1070			1	FRUIT		

TABLE X (Continued)

	USU:SNACK3	USU:SNACK4	MORNING SICKNESS	DESCRIBE
1001	PICKLES		YES	FIRST TWO MONTHS
1002			NO	
1003			YES	FIRST 2 MONTHS
1004			NO	
1005			YES	FIRST 2 MONTHS-ALL DAY, NOW 7-9 A.M.
1006			NO	
1007			YES	SOME
1008			YES	FIRST 4-5 MONTHS
1009			YES	FIRST FEW WEEKS
1010			NO	
1011			NO	
1012			NO	
1013			NO	
1014			YES	FIRST 2 MONTHS
1015			YES	FIRST 3.5 MONTHS
1016	FRUIT		YES	EVERY DAY
1017			YES	ALL DAY FOR 1.5 MONTHS
1018			NO	
1019			YES	ABOUT 1 MONTH
1020			NO	
1021			NO	
1022			YES	FIRST 1.5 MONTHS
1023	SANDWICH		YES	7 MONTHS (EVERY OTHER DAY)
1024			YES	FIRST 2 MONTHS
1025			NO	
1026			YES	FIRST MONTH
1027			YES	6-7 WEEKS (STARTED IN 3RD MONTH)
1028			NO	
1029			YES	FIRST MONTH
1030			NO	
1031	MILK-WH		NO	
1032			NO	
1033	ICE CREAM		YES	FIRST 3 MONTHS
1034			YES	FIRST 3 MONTHS
1035			NO	
1036			NO	
1037			YES	FIRST 3 MONTHS
1038			NO	
1039			NO	
1040			NO	
1041			YES	FIRST MONTH
1042			NO	
1043			NO	
1044			YES	FIRST 4 MONTHS
1045			YES	FIRST MONTH
1046			YES	FIRST 3 WEEKS
1047			YES	FIRST MONTH
1048			NO	
1049			YES	FIRST 4 MONTHS
1050			YES	FIRST 3 WEEKS
1051			YES	FIRST 3 MONTHS
1052			YES	FIRST 2 MONTHS
1053			NO	
1054			YES	FIRST 2 MONTHS
1055			YES	FIRST 3 MONTHS
1056			YES	FIRST 4 MONTHS
1057			YES	FIRST 2 MONTHS
1058			YES	FIRST 3 MONTHS
1059	CHEESE	CRACKERS	YES	FIRST 2 WEEKS
1060			YES	FIRST 2 MONTHS
1061			NO	
1062			YES	FIRST 3 MONTHS
1063			YES	FIRST 3 MONTHS
1064			NO	
1065			NO	
1066			NO	
1067			NO	
1068			NO	
1069	ICED TEA		NO	
1070			NO	

TABLE X (Continued)

	R:COMPLIC	EXCELL	GOOD	FAIR	POOR
1001	DIFFICULTY URINATING (MONTH AGO)	0	0	0	1
1002	NONE	0	1	0	0
1003	ANKLES SWELLING	0	1	0	0
1004	SWELLING	0	1	0	0
1005	NONE	0	1	0	0
1006	CRAMP IN LEGS	1	0	0	0
1007	BLEEDING	0	1	0	0
1008	NONE	0	0	0	1
1009	BLADDER INFECTION	0	0	1	0
1010	NONE	0	1	0	0
1011	FEET SWELLING	0	1	0	0
1012	SWELLING	0	0	1	0
1013	NONE	0	0	1	0
1014	NONE	0	0	1	0
1015	NONE	0	1	0	0
1016	FEET SWELLING	0	1	0	0
1017	NONE	0	1	0	0
1018	NONE	0	1	0	0
1019	NONE	0	1	0	0
1020	FEET SWELLING	0	1	0	0
1021	NONE	0	1	0	0
1022	NONE	0	1	0	0
1023	NONE	0	0	1	0
1024	FEET SWELLING	0	0	0	1
1025	NONE	0	0	1	0
1026	ACHING	0	0	0	1
1027	SPOTTING	0	0	1	0
1028	NONE	0	1	0	0
1029	NONE	0	1	0	0
1030	NONE	0	1	0	0
1031	FEET SWELLING, BACK PROBLEMS	0	0	1	0
1032	SWELLING	0	0	1	0
1033	NONE	0	0	1	0
1034	NONE	0	0	1	0
1035	NONE	0	1	0	0
1036	NONE	0	1	0	0
1037	NONE	0	0	1	0
1038	SWELLING, BLADDER INFECTION	0	1	0	0
1039	SWELLING	0	1	0	0
1040	NONE	0	1	0	0
1041	NONE	0	1	0	0
1042	NONE	0	1	0	0
1043	NONE	0	1	0	0
1044	NONE	0	1	0	0
1045	NONE	0	1	0	0
1046	NONE	0	1	0	0
1047	NONE	0	0	0	1
1048	BLEEDING	0	0	1	0
1049	NONE	0	0	1	0
1050	NONE	0	1	0	0
1051	NONE	0	0	1	0
1052	CONSTIPATION	0	0	1	0
1053	NONE	0	0	1	0
1054	NONE	0	0	1	0
1055	SWELLING	0	0	0	1
1056	VARICOSE VEINS	0	0	1	0
1057	SWELLING HANDS	0	0	1	0
1058	FEET SWELLING	0	0	1	0
1059	SWELLING OF FEET	0	1	0	0
1060	FEET SWELLING	0	1	0	0
1061	FEET SWELLING	0	1	0	0
1062	NONE	0	1	0	0
1063	NONE	0	0	1	0
1064	LOSS OF FEELING IN LEGS IN A.M.	0	1	0	0
1065	SWELLING	0	0	1	0
1066	BLADDER INFECTION	0	1	0	0
1067	CRAMPS IN LEGS	0	1	0	0
1068	NONE	0	1	0	0
1069	NONE	0	1	0	0
1070	NONE	0	1	0	0

APPENDIX F

TABLE OF NUTRIENT INTAKE AND PERCENTAGE OF RECOMMENDED DIETARY ALLOWANCES

TABLE XI

NUTRIENT INTAKE AND PERCENTAGE OF
RECOMMENDED DIETARY ALLOWANCES

Subject #	#1		#2		#3		#4	
Nutrient	Amount Consumed	% RDA	Amount Consumed	% RDA	Amount Consumed	% RDA	Amount Consumed	% RDA
Calories	2732.	115	1551	67	1557	67	1340	58
Carbohydrate (GMS)	448.50	130	159.2	52	138.8	45	118.3	36
Total Protein (GMS)	66.21	89	62.62	85	70.32	95	69.88	94
Fiber (GMS)	1.39	23	.75	13	2.42	42	3.06	51
Saturated Fats (GMS)	34.00	129	11.93	47	27.1	107	30.4	115
Unsaturated Fats (GMS)	37.13	73	12.28	24	41.3	82	29.85	58
Fats (GMS)	76.88	100	69.32	90	79.81	104	66.95	87
Cholesterol (MG)	180.50	60	354	114	210.3	68	196.5	66
Vitamin A (REU)	509.20	51	356.4	36	216.8	22	279.8	28
Vitamin B1 (MG)	.84	56	.82	55	2.42	162	1.18	79
Vitamin B2 (MG)	1.19	79	1.36	91	.9	60	1.76	114
Vitamin B6 (MG)	.85	33	.16	6	.97	36	.82	32
Vitamin B12 (MCG)	2.48	62	1.45	36	1.4	35	3.43	86
Folacin (MCG)	187.0	23	44	6	120.4	16	99.8	12
Niacin (MG)	20.04	127	14.26	95	17.31	115	10.15	68
Vitamin C (MG)	237.7	297	5.36	7	37	48	50.4	63
Vitamin E (MG)	3.02	30	.54	5	4.87	45	1.84	18
Sodium (MG)	1704	77	1369	62	1682	76	2232	101
Phosphorous (MG)	633	53	613.2	51	803.4	67	1316	108
Potassium (MG)	1781	47	844	23	1475	40	2156	57
Calcium (MG)	226.7	19	717.4	60	198.9	17	1214	101
Iron (MG)	11.2	62	9.51	53	11.88	66	7.5	42
Magnesium (MG)	113.3	25	99.79	22	110.3	24	219.6	49
Zinc (MG)	10.16	51	1.85	9	10.07	49	10.63	53
Polyunsaturated Fats (GMS)	7.9	31	2.28	9	9.21	36	6.05	24

TABLE XI (Continued)

Subject #	#5		#6		#7		#8	
Nutrient	Amount Consumed	% RDA	Amount Consumed	% RDA	Amount Consumed	% RDA	Amount Consumed	% RDA
Calories	2120	92	2003	87	3059	126	3439	134
Carbohydrate (GMS)	116.8	36	205.1	62	246.4	75	497.3	135
Total Protein (GMS)	78.73	105	86.69	114	102.9	131	115.1	145
Fiber (GMS)	2.85	48	3.92	65	3.78	63	8.649	135
Saturated Fats (GMS)	60.42	236	16.27	64	75.54	296	62.36	234
Unsaturated Fats (GMS)	75.96	139	39.45	77	94.3	168	40.19	75
Fats (GMS)	146.4	173	102.9	127	184.8	241	113.2	134
Cholesterol (MG)	480.3	148	388	123	277.2	92	219.7	73
Vitamin A (REU)	418.4	42	164.1	16	1740	159	4446	445
Vitamin B1 (MG)	.94	63	1.18	79	2.5	154	5.4	360
Vitamin B2 (MG)	1.38	92	1.26	84	3	180	5.64	353
Vitamin B6 (MG)	.99	38	.43	17	2.88	109	5.55	213
Vitamin B12 (MCG)	4.58	112	.64	16	8.979	224	16.02	401
Folacin (MCG)	175.7	22	151.5	19	481.5	60	1180	138
Niacin (MG)	16.03	106	34.98	233	33.42	223	63.94	400
Vitamin C (MG)	48.75	61	56.73	71	35.18	44	285.9	357
Vitamin E (MG)	22.83	228	8.689	87	48.33	483	8.88	89
Sodium (MG)	1212	55	1099	50	2833	123	2791	122
Phosphorous (MG)	1050	88	926.7	77	1407	114	1829	142
Potassium (MG)	2256	60	1928	51	2108	56	4048	106
Calcium (MG)	506.9	42	295.1	25	830.2	69	893.2	74
Iron (MG)	12.47	69	14.63	81	27.12	141	53.26	296
Magnesium (MG)	169.9	38	246.3	55	226.8	50	458.9	102
Zinc (MG)	5.43	27	3.27	16	9.28	46	15.63	78
Polyunsaturated Fats (GMS)	18.79	74	13.4	52	20.93	82	9.890	37

TABLE XI (Continued)

Subject #	#9		#10		#11		#12	
Nutrient	Amount Consumed	% RDA	Amount Consumed	% RDA	Amount Consumed	% RDA	Amount Consumed	% RDA
Calories	2292	100	3725	150	1336	56	1627	68
Carbohydrate (GMS)	218.0	67	573	159	153.5	44	206.5	60
Total Protein (GMS)	78.02	102	140.2	172	22.51	30	51.8	68
Fiber (GMS)	3.73	62	21.16	353	2.6	43	1.08	18
Saturated Fats (GMS)	54.33	213	33.03	123	20.47	77	24.6	92
Unsaturated Fats (GMS)	58.05	111	62.7	118	42.61	80	37.4	70
Fats (GMS)	125.5	151	107.5	132	74.71	93	67.6	85
Cholesterol (MG)	649.7	217	671	224	36.5	12	79	26
Vitamin A (REU)	2361	236	7355	736	475	48	246	25
Vitamin B1 (MG)	2.64	161	7.94	529	1.14	76	.7	47
Vitamin B2 (MG)	3.78	236	8.859	591	.88	55	.7	44
Vitamin B6 (MG)	3.31	122	9.649	371	.98	38	.12	5
Vitamin B12 (MCG)	12.23	306	29.11	728	.77	19	1.88	47
Folacin (MCG)	593.8	74	492.0	62	93.4	60	4	1
Niacin (MG)	35.32	221	89.33	596	8.72	55	9.100	57
Vitamin C (MG)	16.67	21	566.5	708	128.1	148	46	58
Vitamin E (MG)	43.72	437	16.95	156	58.1	581	1.66	17
Sodium (MG)	1079	60	6414	292	345.3	16	3795	211
Phosphorous (MG)	1293	81	3572.	298	294.6	25	634.8	40
Potassium (MG)	1795	59	5248	132	1220	33	862.5	28
Calcium (MG)	739.6	46	2108.	161	262.0	22	521.3	33
Iron (MG)	30.66	156	81.1	451	4.32	24	6.77	38
Magnesium (MG)	244.8	54	898.2	180	111.4	25	107.0	24
Zinc (MG)	11.55	58	19.81	99	2.08	10	3.11	16
Polyunsaturated Fats (GMS)	8.5	33	30.36	115	4.41	17	8.270	31

TABLE XI (Continued)

Subject #	#13		#14		#15		#16	
Nutrient	Amount Consumed	% RDA	Amount Consumed	% RDA	Amount Consumed	% RDA	Amount Consumed	% RDA
Calories	2279	99	2316.	97	2683	114	3336	136
Carbohydrate (GMS)	244.8	75	374.4	106	348.7	105	568.3	159
Total Protein (GMS)	127.7	158	57.29	77	75.46	102	140.5	168
Fiber (GMS)	2.2	37	2.45	41	6.39	106	15.66	261
Saturated Fats (GMS)	27.7	106	21.41	80	24.72	97	15.48	61
Unsaturated Fats (GMS)	49.66	97	35.03	66	47.11	92	22.7	44
Fats (GMS)	86.43	110	64.34	80	117.7	143	61.86	81
Cholesterol (MG)	351.6	114	46.75	16	148	49	533	162
Vitamin A (REU)	738.6	74	3099	310	3488	349	3366	337
Vitamin B1 (MG)	1.47	98	4.39	293	4.34	289	6.82	455
Vitamin B2 (MG)	1.59	105	4.15	259	4.65	310	4.97	311
Vitamin B6 (MG)	1.85	71	4.78	167	5.12	178	6.16	237
Vitamin B12 (MCG)	1.42	36	.81	20	13.74	344	2.19	55
Folacin (MCG)	253.4	32	1077.	128	874.4	107	1907	238
Niacin (MG)	41.94	280	50.67	317	57.22	381	56.93	356
Vitamin C (MG)	132.1	152	331.2	414	66.13	83	516.7	646
Vitamin E (MG)	6.3	63	1.52	15	46.64	466	7.29	73
Sodium (MG)	2751	120	4023	166	3074	132	1798	100
Phosphorous (MG)	1323	108	927.9	77	1341	110	2223	131
Potassium (MG)	2370	63	2429	65	3167	84	5986	177
Calcium (MG)	670.4	56	418.8	35	949.4	79	1118	70
Iron (MG)	12.32	68	21.66	116	22.09	118	64.36	358
Magnesium (MG)	494.3	108	211.2	47	360.8	80	188	42
Zinc (MG)	8.46	42	5.77	29	15.91	80	32.91	152
Polyunsaturated Fats (GMS)	15.73	62	7.69	29	9.34	37	10.09	39

TABLE XI (Continued)

Subject #	#17		#18		#19		#20	
Nutrient	Amount Consumed	% RDA	Amount Consumed	% RDA	Amount Consumed	% RDA	Amount Consumed	% RDA
Calories	2130	89	1428.	62	1645	69	7624	318
Carbohydrate (GMS)	385.5	110	151.2	46	171.7	50	1190	344
Total Protein (GMS)	110.2	136	60.32	82	62.61	82	209.6	283
Fiber (GMS)	17.3	288	2.46	41	4.1	68	8.859	138
Saturated Fats (GMS)	8.84	33	30.42	115	45.75	158	65.74	247
Unsaturated Fats (GMS)	7.39	14	31.19	61	29.91	56	118.2	222
Fats (GMS)	22.6	28	66.03	86	80.52	101	226.8	284
Cholesterol (MG)	283.1	94	417.6	131	275	92	498.8	153
Vitamin A (REU)	173.2	17	1183	114	802.0	80	8699	870
Vitamin B1 (MG)	3.46	231	1.1	73	.75	50	10.35	690
Vitamin B2 (MG)	1.44	90	1.85	118	2.04	122	11.07	692
Vitamin B6 (MG)	2.17	83	.82	32	.81	31	9.75	375
Vitamin B12 (MCG)	1.45	36	1.44	36	4.35	107	4.02	101
Folacin (MCG)	874	107	379.2	47	95.51	12	1918	240
Niacin (MG)	10.44	65	7.58	51	10.25	64	123.9	774
Vitamin C (MG)	2.3	3	232.5	291	72.14	90	288	360
Vitamin E (MG)	6.42	64	2.37	24	2.74	27	96.32	963
Sodium (MG)	603.3	34	3088	132	1068	59	7618	346
Phosphorous (MG)	2190	130	1174	98	1240	78	2743	229
Potassium (MG)	4422	136	2998	80	2891	95	3994	106
Calcium (MG)	905.3	57	1424	115	1276	80	2240	170
Iron (MG)	28.44	146	7.67	43	7.29	41	121.1	673
Magnesium (MG)	53.2	12	786.4	160	164.2	37	805.6	163
Zinc (MG)	2.01	10	5.54	28	10.27	51	76.08	380
Polyunsaturated Fats (GMS)	1.46	5	6.67	26	3.36	13	41.85	146

TABLE XI (Continued)

Subject #	#21		#22		#23		#24	
Nutrient	Amount Consumed	% RDA	Amount Consumed	% RDA	Amount Consumed	% RDA	Amount Consumed	% RDA
Calories	1830	76	4006.	154	1544	67	3869	149
Carbohydrate (GMS)	134.0	39	473.1	130	185.0	56	427	118
Total Protein (GMS)	129.1	159	194.4	263	67.41	91	137.6	169
Fiber (GMS)	3.58	60	13.31	222	5.08	85	9.34	145
Saturated Fats (GMS)	32.47	118	54.45	204	26.13	102	74.43	279
Unsaturated Fats (GMS)	44.45	83	42.65	80	27.59	54	82.38	143
Fats (GMS)	85.7	106	128.9	149	59.4	77	190.7	238
Cholesterol (MG)	607.7	203	320.2	106	102	34	401	127
Vitamin A (REU)	797.5	80	2042	204	536.0	54	1816	166
Vitamin B1 (MG)	1.08	72	2.55	156	1.06	71	2.57	157
Vitamin B2 (MG)	2.03	122	4.61	288	1.5	100	4.91	307
Vitamin B6 (MG)	2.01	77	2.55	98	1.19	46	2.46	95
Vitamin B12 (MCG)	4.48	110	9.29	232	1.72	43	9.83	246
Folacin (MCG)	199.2	25	477.9	60	229.3	29	448.3	56
Niacin (MG)	37.49	234	26.36	152	14.47	96	44.42	278
Vitamin C (MG)	70.98	89	406.6	508	96.37	116	268.3	335
Vitamin E (MG)	6.87	69	7.7	77	7.97	80	7.55	76
Sodium (MG)	2705.	118	3049	131	2839	123	9410	428
Phosphorous (MG)	1499	120	2846	237	1073	89	2621	218
Potassium (MG)	2802	75	6305	154	2719	73	5914	146
Calcium (MG)	921.7	77	2615	218	706.6	59	2662	222
Iron (MG)	13.89	77	24.98	131	15.22	85	24.96	131
Magnesium (MG)	252.2	56	531.9	114	216.0	48	649.3	135
Zinc (MG)	9.729	49	19.47	97	8.25	41	17.97	90
Polyunsaturated Fats (GMS)	12	45	8.3	31	3.52	14	23.36	88

TABLE XI (Continued)

Subject #	#25		#26		#27		#28	
Nutrient	Amount Consumed	% RDA	Amount Consumed	% RDA	Amount Consumed	% RDA	Amount Consumed	% RDA
Calories	477.5	20	723.5	31	1957	82	2321	97
Carbohydrate (GMS)	69	20	59	18	353.5	102	266.8	77
Total Protein (GMS)	15.65	21	24.89	34	91.08	118	78.13	105
Fiber (GMS)	1.44	24	1.25	21	18.15	303	6.77	110
Saturated Fats (GMS)	7	26	14.7	58	4.95	19	41.02	143
Unsaturated Fats (GMS)	8.3	16	25.23	49	14.95	28	60.81	111
Fats (GMS)	17.3	22	42.9	56	24.34	30	110.8	131
Cholesterol (MG)	36	12	59.75	20	52	17	132.0	44
Vitamin A (REU)	415.5	42	4	0	3024	302	3000	300
Vitamin B1 (MG)	.38	25	.47	31	5.07	338	3.77	251
Vitamin B2 (MG)	.61	38	.29	19	3.89	243	4.31	269
Vitamin B6 (MG)	.57	22	.35	13	5.05	175	4.74	166
Vitamin B12 (MCG)	0	0	.59	15	12	300	12.91	323
Folacin (MCG)	11.65	1	17	2	478.1	60	1005.	121
Niacin (MG)	2.36	15	7.19	48	46.43	290	61.47	384
Vitamin C (MG)	28.6	36	14	18	122.1	142	327.3	409
Vitamin E (MG)	1.18	12	.25	3	3.3	33	13.13	125
Sodium (MG)	1267.	58	1026	47	3253	138	2405	107
Phosphorous (MG)	382	32	296.1	25	2214	168	1220	102
Potassium (MG)	835	22	963.1	26	31.4	83	3646	97
Calcium (MG)	466	39	50.69	4	804	67	622.3	52
Iron (MG)	1.68	9	4.35	24	51.76	288	42.8	238
Magnesium (MG)	312.5	69	21.66	5	328.2	73	324.8	72
Zinc (MG)	1.12	6	2.47	12	6.8	34	9.03	45
Polyunsaturated Fats (GMS)	2.3	9	5.56	22	7.34	28	18.35	69

TABLE XI (Continued)

Subject #	#29		#30		#31		#32	
Nutrient	Amount Consumed	% RDA	Amount Consumed	% RDA	Amount Consumed	% RDA	Amount Consumed	% RDA
Calories	814.4	34	4411.	167	1413	59	1789	78
Carbohydrate (GMS)	44.19	13	460.5	126	156.7	45	238	72
Total Protein (GMS)	46.65	63	183.2	248	51.67	70	84.93	112
Fiber (GMS)	.87	15	1.69	28	1.91	32	2.43	41
Saturated Fats (GMS)	19.9	75	85.85	322	23.69	89	23	90
Unsaturated Fats (GMS)	23.6	44	99.29	169	34.29	64	23.5	46
Fats (GMS)	49.73	62	199.8	250	63.19	79	52.9	69
Cholesterol (MG)	403.2	127	1110	370	104.1	35	160	53
Vitamin A (REU)	286.3	29	1159	113	316.4	32	885	89
Vitamin B1 (MG)	1.24	83	2.25	140	.86	57	1.25	83
Vitamin B2 (MG)	1.11	69	2.98	169	1.23	77	1.25	83
Vitamin B6 (MG)	.57	22	2.34	90	.39	15	1.12	43
Vitamin B12 (MCG)	2.03	51	4.27	106	1.88	47	3.2	80
Folacin (MCG)	63.63	8	190.5	24	101.3	13	105.8	13
Niacin (MG)	7.6	48	49.8	311	12.14	76	23.25	144
Vitamin C (MG)	13.08	16	10.02	13	37.51	47	124.5	145
Vitamin E (MG)	1.04	10	18.8	170	6.6	66	5.1	51
Sodium (MG)	777.5	35	5622	256	2841	123	1472	67
Phosphorous (MG)	725	60	2773	231	783.9	65	844.5	70
Potassium (MG)	1202	32	2854	76	1945.	52	2112	56
Calcium (MG)	493	41	1844	143	698.1	58	208.5	17
Iron (MG)	6.39	36	20.19	110	9.2	51	15.7	87
Magnesium (MG)	164.5	37	443.3	99	123.1	27	180	40
Zinc (MG)	6.38	32	15.65	78	36.4	18	12.88	64
Polyunsaturated Fats (GMS)	4.44	17	29.24	108	11.92	45	1.9	7

TABLE XI (Continued)

Subject #	#33		#34		#35		#36	
Nutrient	Amount Consumed	% RDA	Amount Consumed	% RDA	Amount Consumed	% RDA	Amount Consumed	% RDA
Calories	4733.	178	562.4	23	989.1	43	2326.	97
Carbohydrate (GMS)	579.3	154	94.26	27	130.7	40	217.7	63
Total Protein (GMS)	152.1	206	21.25	28	45.2	61	72.68	96
Fiber (GMS)	19.35	323	7.45	119	4.75	79	3.82	64
Saturated Fats (GMS)	56.14	211	6.06	23	16.15	63	45.26	156
Unsaturated Fats (GMS)	121.7	228	7.09	13	14.11	28	70.56	126
Fats (GMS)	207.9	260	14.95	19	34.52	45	130.1	150
Cholesterol (MG)	548.5	166	38.17	13	90.5	30	382.8	122
Vitamin A (REU)	301	30	752.1	75	2121.	212	2810	281
Vitamin B1 (MG)	4.52	301	.78	52	2.28	142	1.26	84
Vitamin B2 (MG)	2.09	125	1.1	69	2.86	173	1.5	94
Vitamin B6 (MG)	2.52	97	1.08	42	3.27	121	.78	30
Vitamin B12 (MCG)	2.23	56	3.34	84	8.96	224	2.94	74
Folacin (MCG)	988.9	119	204.8	26	524.8	66	173.6	22
Niacin (MG)	23.75	138	11.37	71	31.93	213	16.69	103
Vitamin C (MG)	92.05	112	35.3	44	106.4	126	58.76	73
Vitamin E (MG)	138.8	1389	1.64	16	3.99	39	49.31	493
Sodium (MG)	1416	64	1210	67	433.4	24	937.8	52
Phosphorous (MG)	2503	209	566.0	35	1261	78	984.0	62
Potassium (MG)	5392	135	963.4	32	1144	38	2512	82
Calcium (MG)	815.6	68	238.9	15	782.5	65	508.9	32
Iron (MG)	39.21	218	10.51	58	27.67	143	13.35	74
Magnesium (MG)	138.0	31	158.9	35	197.3	44	157.0	35
Zinc (MG)	4.44	22	4.82	24	7.79	39	4.32	22
Polyunsaturated Fats (GMS)	21.24	80	2.08	8	1.67	7	14.77	55

TABLE XI (Continued)

Subject #	#37		#38		#39		#40	
Nutrient	Amount Consumed	% RDA	Amount Consumed	% RDA	Amount Consumed	% RDA	Amount Consumed	% RDA
Calories	1675.	70	1735.	72	1296.	54	1291.	56
Carbohydrate (GMS)	217.1	63	138.4	40	91.66	27	108.8	33
Total Protein (GMS)	54.88	74	98.91	127	66.94	88	69.76	94
Fiber (GMS)	1.33	22	6.53	107	.85	14	1.89	32
Saturated Fats (GMS)	27.83	103	28.19	105	23.24	87	29.8	114
Unsaturated Fats (GMS)	34.92	65	35.84	67	23.97	45	26.88	53
Fats (GMS)	67.53	84	89.72	110	72.93	91	63.44	83
Cholesterol (MG)	181.0	60	193.5	65	577	174	425	134
Vitamin A (REU)	781.3	78	746	75	681.6	68	446.6	45
Vitamin B1 (MG)	1.23	82	2.92	176	.79	53	1.17	78
Vitamin B2 (MG)	2.24	132	1.96	118	1.31	82	1.85	118
Vitamin B6 (MG)	.63	24	1.55	60	.52	20	.93	36
Vitamin B12 (MCG)	3.03	76	4.37	107	2.79	70	4.24	105
Folacin (MCG)	115.9	14	198	25	179.8	22	115.9	14
Niacin (MG)	17.26	106	26.89	154	11.12	70	10.31	69
Vitamin C (MG)	40.57	51	28.25	35	119.8	140	16.95	21
Vitamin E (MG)	17.85	163	1.79	18	.33	3	3.09	31
Sodium (MG)	2194	100	687.1	31	803.9	45	2216.	101
Phosphorous (MG)	1085	90	1107.	92	579.7	37	1196.	100
Potassium (MG)	1665	44	1264.	34	1318	43	1852.	49
Calcium (MG)	1084	90	577.4	48	493.6	31	1056.	88
Iron (MG)	7.32	41	19.65	107	10.03	56	9.42	52
Magnesium (MG)	157.7	35	202.1	45	101.6	23	192.6	43
Zinc (MG)	6.85	34	11.98	60	2.64	13	9.770	49
Polyunsaturated Fats (GMS)	18.05	68	6.47	24	3.21	12	4.18	16

TABLE XI (Continued)

Subject #	#41		#42		#43		#44	
Nutrient	Amount Consumed	% RDA	Amount Consumed	% RDA	Amount Consumed	% RDA	Amount Consumed	% RDA
Calories	1061.	44	1208.	50	1525.	66	2202.	92
Carbohydrate (GMS)	117.2	34	112.9	33	210.4	64	170.7	49
Total Protein (GMS)	35.9	49	57.05	77	45.18	61	103.5	132
Fiber (GMS)	2.06	34	3.12	52	6.93	113	2.46	41
Saturated Fats (GMS)	21.76	82	28.1	104	15.55	61	56.06	210
Unsaturated Fats (GMS)	25.19	47	25.21	47	35.3	69	57.27	106
Fats (GMS)	50.75	63	59.55	74	60.55	79	122.6	142
Cholesterol (MG)	102.2	34	161	54	33	11	476.2	147
Vitamin A (REU)	2108.	211	2020.	202	956.1	96	489.5	49
Vitamin B1 (MG)	.71	47	2.98	179	2.1	132	1.16	77
Vitamin B2 (MG)	1.22	76	3.13	177	1.7	110	1.64	102
Vitamin B6 (MG)	.28	11	2.85	108	1.32	51	1.02	39
Vitamin B12 (MCG)	1.44	36	8.7	218	.87	22	4.58	112
Folacin (MCG)	100.8	13	504.8	63	246.9	31	242.1	30
Niacin (MG)	8.939	56	30.68	174	13.5	90	15.26	95
Vitamin C (MG)	33.05	41	74.8	94	140.5	161	142.4	162
Vitamin E (MG)	2.58	26	1.22	12	44.49	445	6.49	65
Sodium (MG)	1571.	71	1900	86	1018	46	3826.	159
Phosphorous (MG)	629.8	52	1320.	108	854.1	71	1391.	113
Potassium (MG)	1315.	35	1126.	30	2321.	62	2532.	68
Calcium (MG)	639.5	53	874	73	590.8	49	1067.	89
Iron (MG)	5.29	29	26.59	138	9.95	55	14.38	80
Magnesium (MG)	97.24	22	152.6	34	324.8	72	174.5	39
Zinc (MG)	3.85	19	8.72	44	7.13	36	15.62	78
Polyunsaturated Fats (GMS)	9.770	37	4.18	16	7.05	28	13.9	52

TABLE XI (Continued)

Subject #	#45		#46		#47		#48	
Nutrient	Amount Consumed	% RDA	Amount Consumed	% RDA	Amount Consumed	% RDA	Amount Consumed	% RDA
Calories	2681.	110	2511.	104	263	11	2786.	113
Carbohydrate (GMS)	218.3	63	270.6	79	15	4	395.3	112
Total Protein (GMS)	115.5	145	113.1	139	9.600	13	90.94	116
Fiber (GMS)	2.88	48	3.63	61	.05	1	12.08	201
Saturated Fats (GMS)	60.6	227	48.29	165	5.4	20	25.91	97
Unsaturated Fats (GMS)	72.2	128	50.72	95	10.7	20	63.34	115
Fats (GMS)	149.7	170	110.3	130	18.2	23	97.22	118
Cholesterol (MG)	364.5	118	363.5	117	24	8	160.7	54
Vitamin A (REU)	1652.	152	2628.	263	0	0	3987.	399
Vitamin B1 (MG)	4.18	279	2.65	162	.24	16	4.34	289
Vitamin B2 (MG)	4.16	260	3.35	209	.15	9	4.6	288
Vitamin B6 (MG)	1.49	57	2.11	81	.04	2	4.71	165
Vitamin B12 (MCG)	5.26	126	4.99	120	.16	4	14.1	353
Folacin (MCG)	190.4	24	215.5	27	0	0	140.9	18
Niacin (MG)	38.04	238	26.62	153	2.2	14	55.26	345
Vitamin C (MG)	113.7	134	64.68	81	0	0	222.4	278
Vitamin E (MG)	10.19	102	3.5	35	.77	8	37.76	378
Sodium (MG)	3004.	130	3846.	214	578	26	4196.	233
Phosphorous (MG)	1921.	148	1715.	106	133	11	1887.	114
Potassium (MG)	3447.	92	3481.	111	102	3	3415.	110
Calcium (MG)	1598.	126	1377	86	23	2	864.4	54
Iron (MG)	28.59	147	15.27	85	1.6	9	47.7	265
Magnesium (MG)	258.2	57	278.3	62	13.8	3	519.9	113
Zinc (MG)	15.36	77	16.94	85	0	0	14.26	71
Polyunsaturated Fats (GMS)	22.61	85	9.54	36	2	8	38.23	134

TABLE XI (Continued)

Subject #	#49		#50		#51		#52	
Nutrient	Amount Consumed	% RDA	Amount Consumed	% RDA	Amount Consumed	% RDA	Amount Consumed	% RDA
Calories	1955.	81	2768.	112	1051.	44	638.1	27
Carbohydrate (GMS)	167.7	48	160.7	46	153.1	45	98.63	29
Total Protein (GMS)	129.4	160	135.1	166	28.53	38	21.13	29
Fiber (GMS)	4.71	79	3.33	56	.29	5	1.2	20
Saturated Fats (GMS)	28.35	105	66.35	249	8.600	32	9	34
Unsaturated Fats (GMS)	44.96	84	85.71	149	19.4	36	9.45	18
Fats (GMS)	81.65	102	173.3	217	36.81	46	20.67	26
Cholesterol (MG)	352	114	785.3	262	45.88	15	53.89	18
Vitamin A (REU)	165.3	17	660.0	66	0	0	185.2	19
Vitamin B1 (MG)	1	67	3.35	223	.34	23	.26	17
Vitamin B2 (MG)	1.27	79	2.7	155	.3	19	.41	26
Vitamin B6 (MG)	1.58	61	1.42	55	.18	7	.42	16
Vitamin B12 (MCG)	1.64	41	4.42	109	1.08	27	.8	20
Folacin (MCG)	37.13	5	238.8	30	27.25	3	10.53	1
Niacin (MG)	39.11	244	26.49	153	4.77	30	5.9	37
Vitamin C (MG)	1.25	2	76.74	96	7.78	10	28.64	36
Vitamin E (MG)	4.05	41	18.43	167	22.34	223	.78	8
Sodium (MG)	3090.	132	2855.	124	734.8	41	1018.	46
Phosphorous (MG)	1525.	122	1905.	147	307.4	19	240.1	20
Potassium (MG)	1158.	31	3218.	86	529.6	17	777.7	21
Calcium (MG)	626.3	52	982.9	82	71.7	4	72.88	6
Iron (MG)	14.63	81	21.36	115	3.58	20	4.16	23
Magnesium (MG)	263.2	58	281.4	63	56.8	13	75.4	17
Zinc (MG)	8.270	41	15.42	77	1.71	9	18.35	92
Polyunsaturated Fats (GMS)	13.57	51	18.85	71	2.7	10	1.88	7

TABLE XI (Continued)

Subject #	#53		#54		#55		#56	
Nutrient	Amount Consumed	% RDA	Amount Consumed	% RDA	Amount Consumed	% RDA	Amount Consumed	% RDA
Calories	1810.	79	981.7	43	3942.	157	1690.	73
Carbohydrate (GMS)	191.5	58	80.8	25	402.6	118	110.1	34
Total Protein (GMS)	51.74	70	24.18	33	70.91	96	77.25	103
Fiber (GMS)	1.96	33	1.07	18	7.32	118	.56	9
Saturated Fats (GMS)	30.95	117	21.85	86	67.53	264	37.04	136
Unsaturated Fats (GMS)	52.66	102	34.95	68	154.4	302	53.79	104
Fats (GMS)	94.15	118	63.88	83	233.3	304	102.0	126
Cholesterol (MG)	501.8	154	103.1	32	141	47	648.5	216
Vitamin A (REU)	387.2	39	120.5	12	92.03	9	181.7	18
Vitamin B1 (MG)	.9	60	.12	8	1.48	99	1.79	115
Vitamin B2 (MG)	1.08	72	.42	28	1.16	77	1.37	91
Vitamin B6 (MG)	.83	32	9.000	3	.38	15	.64	25
Vitamin B12 (MCG)	2.2	55	.64	16	3.15	79	3.78	95
Folacin (MCG)	96.15	12	28.7	4	50.93	6	98	12
Niacin (MG)	11.38	76	3.01	20	31.17	208	15.72	104
Vitamin C (MG)	48.03	60	7.75	10	92.3	112	32.01	40
Vitamin E (MG)	32.36	324	43.38	434	29.07	291	1.86	19
Sodium (MG)	2031.	92	1353.	62	4767.	217	2938.	127
Phosphorous (MG)	656.6	55	456.7	38	1210.	101	861.3	72
Potassium (MG)	1511.	40	581.2	16	5530.	138	1199	32
Calcium (MG)	362.3	30	378.2	32	643.9	54	309.5	26
Iron (MG)	9.45	53	3.68	20	15.95	89	13.34	74
Magnesium (MG)	183.7	41	37.15	8	145.0	32	146.6	33
Zinc (MG)	4.66	23	4.06	20	10.07	50	10.15	51
Polyunsaturated Fats (GMS)	12.28	48	3.55	14	88.08	345	8.649	34

TABLE XI (Continued)

Subject #	#57		#58		#59		#60	
Nutrient	Amount Consumed	% RDA	Amount Consumed	% RDA	Amount Consumed	% RDA	Amount Consumed	% RDA
Calories	2762.	112	1557.	65	2095.	91	1980.	80
Carbohydrate (GMS)	388.9	110	153.6	44	212.7	65	166.2	48
Total Protein (GMS)	59.47	78	35.39	48	58.64	79	113.8	140
Fiber (GMS)	3.48	58	2.73	46	.36	6	.64	11
Saturated Fats (GMS)	28.98	107	37.15	131	35.45	131	9.3	35
Unsaturated Fats (GMS)	60.58	111	47.24	89	58	110	9.770	18
Fats (GMS)	106.4	126	89.09	109	115.2	140	84.92	105
Cholesterol (MG)	535.8	163	123.8	41	660	220	57.75	19
Vitamin A (REU)	275.5	28	489.8	49	277	28	1156.	113
Vitamin B1 (MG)	2.13	134	.7	47	1.12	75	1.33	89
Vitamin B2 (MG)	1.18	74	.67	42	1.11	74	1.7	105
Vitamin B6 (MG)	1.06	41	.2	8	.49	19	.23	9
Vitamin B12 (MCG)	1.74	44	.78	20	3.67	92	.57	14
Folacin (MCG)	114.2	14	67.93	8	80.6	10	32.1	4
Niacin (MG)	17.6	108	10.51	66	9.2	61	25.99	150
Vitamin C (MG)	14.66	18	72	90	15.26	19	54.8	69
Vitamin E (MG)	74.78	748	4.36	44	10.26	102	.78	8
Sodium (MG)	757.9	42	1567.	71	3473.	146	1049.	58
Phosphorous (MG)	723.3	45	546.6	46	825.7	69	313.5	20
Potassium (MG)	1456.	48	1773.	47	830.9	22	702.7	23
Calcium (MG)	211.6	13	327.4	27	515.3	43	483.6	30
Iron (MG)	17.07	95	6.96	39	8.899	49	17.65	98
Magnesium (MG)	163.7	36	72.3	16	87.43	19	61.83	14
Zinc (MG)	6.81	34	4.17	21	6.37	32	3.79	19
Polyunsaturated Fats (GMS)	7.48	28	15.29	57	18.52	72	1.73	6

TABLE XI (Continued)

Subject #	#61		#62		#63		#64	
Nutrient	Amount Consumed	% RDA	Amount Consumed	% RDA	Amount Consumed	% RDA	Amount Consumed	% RDA
Calories	5076.	212	2285.	95	2401.	103	2358.	98
Carbohydrate (GMS)	230.9	67	288.7	83	418	122	316.8	92
Total Protein (GMS)	311.4	421	89.58	117	60.19	81	79.46	104
Fiber (GMS)	2.92	49	4.8	80	1.38	23	7.09	114
Saturated Fats (GMS)	107.4	403	31.01	113	16.35	64	36.89	130
Unsaturated Fats (GMS)	166.4	312	46.29	87	23.94	47	44.35	83
Fats (GMS)	316.6	396	88.58	109	51.95	68	87.91	108
Cholesterol (MG)	1452	484	651.8	217	124.7	42	405.1	128
Vitamin A (REU)	501.8	50	791.4	79	3094.	309	676.6	68
Vitamin B1 (MG)	5.62	375	1.22	81	4.11	274	1.97	125
Vitamin B2 (MG)	3.59	224	1.45	91	4.18	279	1.88	114
Vitamin B6 (MG)	5.02	174	.81	31	4.42	156	1.1	42
Vitamin B12 (MCG)	7.29	166	1.97	49	1.52	38	2.72	68
Folacin (MCG)	297.4	37	142.4	18	878.1	108	440.8	55
Niacin (MG)	70.6	441	16.39	102	48.51	323	17.59	108
Vitamin C (MG)	38.19	48	78.76	98	122.3	142	214.7	268
Vitamin E (MG)	47.21	472	2.05	21	1.87	19	9.37	94
Sodium (MG)	9675.	440	3734.	156	4382.	179	5901.	328
Phosphorous (MG)	3064.	255	1247.	103	874.5	73	1596.	100
Potassium (MG)	4608.	118	1216.	32	1069	20	3390.	109
Calcium (MG)	884.2	74	634.1	53	491.2	41	1015.	63
Iron (MG)	37.13	206	14.55	81	22.62	121	14.45	80
Magnesium (MG)	328.0	73	174.9	39	177.4	39	379.8	84
Zinc (MG)	44.2	221	7.84	39	9.71	49	12.28	61
Polyunsaturated Fats (GMS)	32.62	118	11.6	44	4.94	19	16.54	62

TABLE XI (Continued)

Subject #	#65		#66		#67		#68	
Nutrient	Amount Consumed	% RDA	Amount Consumed	% RDA	Amount Consumed	% RDA	Amount Consumed	% RDA
Calories	1520.	66	1568.	65	3268.	129	1420.	62
Carbohydrate (GMS)	157.5	48	232.0	67	438.2	122	145.9	44
Total Protein (GMS)	68.42	92	57.13	77	116.2	146	57.03	77
Fiber (GMS)	2.37	39	.73	12	7.58	121	1.78	30
Saturated Fats (GMS)	22.98	90	15.34	58	48.58	166	26.55	103
Unsaturated Fats (GMS)	36.26	71	21.1	40	48.31	91	33.21	65
Fats (GMS)	67.41	88	44.21	55	124.2	144	67.25	88
Cholesterol (MG)	343.7	112	171	57	557.8	169	587	177
Vitamin A (REU)	529.1	53	75	8	1080.	106	309.4	31
Vitamin B1 (MG)	1.18	79	1.57	104	2.56	157	.87	58
Vitamin B2 (MG)	1.64	107	.87	54	3.24	203	1.06	71
Vitamin B6 (MG)	.61	23	.72	28	2.56	98	.45	17
Vitamin B12 (MCG)	2.69	67	1.33	33	4.88	118	2.58	65
Folacin (MCG)	149.8	19	292	37	732.2	92	102.5	13
Niacin (MG)	11.68	78	13.65	85	27.51	158	11.99	80
Vitamin C (MG)	22.78	28	233	291	564.1	705	40.76	51
Vitamin E (MG)	3.46	35	1.77	18	8.23	82	1.88	19
Sodium (MG)	1846.	84	1077.	49	3847	160	1841.	84
Phosphorous (MG)	1008.	84	591.6	49	2370	178	778.1	65
Potassium (MG)	1648.	44	1588.	42	7310.	176	1677.	45
Calcium (MG)	736.4	61	189	16	2000.	154	408.5	34
Iron (MG)	12.12	67	9.600	53	15.81	88	10.09	56
Magnesium (MG)	178.2	40	158.7	35	493.2	108	118.4	26
Zinc (MG)	7.76	39	5.72	29	12.17	61	6.03	30
Polyunsaturated Fats (GMS)	8.140	32	3.32	12	11.51	43	5.18	20

TABLE XI (Continued)

Subject #	#69		#70	
Nutrient	Amount Consumed	% RDA	Amount Consumed	% RDA
Calories	2673.	113	1469.	61
Carbohydrate (GMS)	347.3	105	190.2	55
Total Protein (GMS)	50.81	69	57.12	77
Fiber (GMS)	2.25	38	3.12	52
Saturated Fats (GMS)	27.37	106	27.38	102
Unsaturated Fats (GMS)	68.38	127	24.26	45
Fats (GMS)	123.9	150	55.49	69
Cholesterol (MG)	48.5	16	156.3	52
Vitamin A (REU)	310.8	31	965.3	97
Vitamin B1 (MG)	1.03	69	1.35	90
Vitamin B2 (MG)	1.08	72	2.17	129
Vitamin B6 (MG)	.3	12	1.45	56
Vitamin B12 (MCG)	.8	20	5.98	140
Folacin (MCG)	103.3	13	220.2	28
Niacin (MG)	15.52	102	13.29	83
Vitamin C (MG)	23.41	29	141.1	161
Vitamin E (MG)	77.88	779	4.96	50
Sodium (MG)	1526.	69	2289.	103
Phosphorous (MG)	440.6	37	1297.	106
Potassium (MG)	1266.	34	2266.	60
Calcium (MG)	407.4	34	1239.	102
Iron (MG)	11.92	66	11.76	65
Magnesium (MG)	100.9	22	269.3	60
Zinc (MG)	4.97	25	8.350	42
Polyunsaturated Fats (GMS)	22.37	88	6.08	23

APPENDIX G

CHI-SQUARE TABLES

Key to Chi-Square Tables:

HEMO	=	Hemoglobin
HEMO	=	Hematocrit
WT	=	Weight
HT	=	Height
WTSP	=	Weight at Start of Pregnancy
TESTR	=	Diabetes Screen Test Result
MORSIC	=	Morning Sickness
NUTSUP	=	Consumption of Nutritional Supplements
NFOOD	=	Consumption of Non Food Items
FDRINK	=	Fruit Drink
FJUICE	=	Fruit Juice
OTHERS	=	Other Snack Foods Than Those Listed on Questionnaire
CFOOD	=	Usual Method of Cooking
HOFTEN	=	How Often Snacked During Day
AHOME	=	Meals Eaten Away from Home Each Day

TABLE OF HEMO BY NUTSUP

HEMO HEMOGLOBIN NUTSUP

FREQUENCY EXPECTED CELL CHI2	NO	YES	TOTAL
	0	7	.
HI	1 2.6 1.0	32 30.4 0.1	33
LO	4 2.4 1.1	26 27.6 0.1	30
TOTAL	5	58	63

DF= 1 PROB=0.1308

CHI-SQUARE 2.283

TABLE OF HEMO BY NFOOD

HEMO HEMOGLOBIN NFOOD

FREQUENCY EXPECTED CELL CHI2	NO	YES	TOTAL
	7	0	.
HI	31 29.9 0.0	2 3.1 0.4	33
LO	26 27.1 0.0	4 2.9 0.5	30
TOTAL	57	6	63

DF= 1 PROB=0.3260

CHI-SQUARE 0.965

TABLE OF HEMO BY CHIPS

HEMO HEMOGLOBIN CHIPS

FREQUENCY EXPECTED CELL CHI2	0	1	TOTAL
	6	1	.
HI	27 27.2 0.0	6 5.8 0.0	33
LO	25 24.8 0.0	5 5.2 0.0	30
TOTAL	52	11	63

DF= 1 PROB=0.8743

CHI-SQUARE 0.025

TABLE OF HEMO BY SODA

HEMO HEMOGLOBIN SODA

FREQUENCY EXPECTED CELL CHI2	0	1	TOTAL
	2	5	.
HI	7 7.3 0.0	26 25.7 0.0	33
LO	7 6.7 0.0	23 23.3 0.0	30
TOTAL	14	49	63

DF= 1 PROB=0.8397

CHI-SQUARE 0.041

TABLE OF HEMO BY CANDY

HEMO	HEMOGLOBIN	CANDY	
FREQUENCY EXPECTED CELL CHI2	0	1	TOTAL
	6 . .	1 . .	.
HI	29 29.9 0.0	4 3.1 0.2	33
LO	28 27.1 0.0	2 2.9 0.3	30
TOTAL	57	6	63

DF= 1 PROB=0.4614

CHI-SQUARE 0.543

TABLE OF HEMO BY COOKI

HEMO	HEMOGLOBIN	COOKI	
FREQUENCY EXPECTED CELL CHI2	0	1	TOTAL
	7 . .	0 . .	.
HI	27 27.8 0.0	6 5.2 0.1	33
LO	26 25.2 0.0	4 4.8 0.1	30
TOTAL	53	10	63

DF= 1 PROB=0.5989

CHI-SQUARE 0.277

TABLE OF HEMO BY FDRNK

HEMO	HEMOGLOBIN	FDRNK	
FREQUENCY EXPECTED CELL CHI2	0	1	TOTAL
	7 . .	0 . .	.
HI	32 32.0 0.0	1 1.0 0.0	33
LO	29 29.0 0.0	1 1.0 0.0	30
TOTAL	61	2	63

DF= 1 PROB=0.9454

CHI-SQUARE 0.005

TABLE OF HEMO BY FRUIT

HEMO	HEMOGLOBIN	FRUIT	
FREQUENCY EXPECTED CELL CHI2	0	1	TOTAL
	3 . .	4 . .	.
HI	12 16.2 1.1	21 16.8 1.1	33
LO	19 14.8 1.2	11 15.2 1.2	30
TOTAL	31	32	63

DF= 1 PROB=0.0325

CHI-SQUARE 4.573

TABLE OF HEMO BY MILK

HEMO HEMOGLOBIN MILK

FREQUENCY / EXPECTED / CELL CHI2	0	1	TOTAL
	6	1	
HI	29 29.9 0.0	4 3.1 0.2	33
LO	28 27.1 0.0	2 2.9 0.3	30
TOTAL	57	6	63

DF= 1 PROB=0.4614

CHI-SQUARE 0.543

TABLE OF HEMO BY FJUIC

HEMO HEMOGLOBIN FJUIC

FREQUENCY / EXPECTED / CELL CHI2	0	1	TOTAL
	6	1	
HI	31 30.9 0.0	2 2.1 0.0	33
LO	28 28.1 0.0	2 1.9 0.0	30
TOTAL	59	4	63

DF= 1 PROB=0.9215

CHI-SQUARE 0.010

TABLE OF HEMO BY OTHERS

HEMO HEMOGLOBIN OTHERS

FREQUENCY / EXPECTED / CELL CHI2	0	1	TOTAL
	5	2	
HI	16 16.2 0.0	17 16.8 0.0	33
LO	15 14.8 0.0	15 15.2 0.0	30
TOTAL	31	32	63

DF= 1 PROB=0.9044

CHI-SQUARE 0.014

TABLE OF HEMO BY CHEES

HEMO HEMOGLOBIN CHEES

FREQUENCY / EXPECTED / CELL CHI2	0	1	TOTAL
	7	0	
HI	26 28.3 0.2	7 4.7 1.1	33
LO	28 25.7 0.2	2 4.3 1.2	30
TOTAL	54	9	63

DF= 1 PROB=0.0994

CHI-SQUARE 2.715

TABLE OF HEMO BY HOFTEN

HEMO HEMOGLOBIN HOFTEN

FREQUENCY / EXPECTED / CELL CHI2	0-2	3-5	TOTAL
	5	2	
HI	23 26.2 0.4	10 6.8 1.5	33
LO	27 23.8 0.4	3 6.2 1.6	30
TOTAL	50	13	63

DF= 1 PROB=0.0467

CHI-SQUARE 3.955

TABLE OF HEMO BY AHOME

HEMO HEMOGLOBIN AHOME

FREQUENCY / EXPECTED / CELL CHI2	NONE	1-UP	TOTAL
	2	5	
HI	15 12.6 0.5	18 20.4 0.3	33
LO	9 11.4 0.5	21 18.6 0.3	30
TOTAL	24	39	63

DF= 1 PROB=0.2071

CHI-SQUARE 1.592

TABLE OF HEMO BY CFOOD

HEMO HEMOGLOBIN CFOOD

FREQUENCY / EXPECTED / CELL CHI2	FRY	NOF	TOTAL
	7	0	
HI	24 25.1 0.1	9 7.9 0.2	33
LO	24 22.9 0.1	6 7.1 0.2	30
TOTAL	48	15	63

DF= 1 PROB=0.4985

CHI-SQUARE 0.458

TABLE OF HEMA BY NFOOD

HEMA HEMATOCRAT NFOOD

FREQUENCY / EXPECTED / CELL CHI2	NO	YES	TOTAL
	2	0	
HI	29 27.4 0.1	1 2.6 1.0	30
LO	33 34.6 0.1	5 3.4 0.8	38
TOTAL	62	6	68

DF= 1 PROB=0.1561

CHI-SQUARE 2.011

TABLE OF HEMA BY NUTSUP

HEMA	HEMATOCRAT	NUTSUP	
FREQUENCY EXPECTED CELL CHI2	NO	YES	TOTAL
	0	2	.
HI	2 2.2 0.0	28 27.8 0.0	30
LO	3 2.8 0.0	35 35.2 0.0	38
TOTAL	5	63	68

DF= 1 PROB=0.8472

CHI-SQUARE 0.037

TABLE OF HEMA BY CFOOD

HEMA	HEMATOCRAT	CFOOD	
FREQUENCY EXPECTED CELL CHI2	FRY	NOF	TOTAL
	2	0	.
HI	22 23.4 0.1	8 6.6 0.3	30
LO	31 29.6 0.1	7 8.4 0.2	38
TOTAL	53	15	68

DF= 1 PROB=0.4155

CHI-SQUARE 0.663

TABLE OF HEMA BY SODA

HEMA	HEMATOCRAT	SODA	
FREQUENCY EXPECTED CELL CHI2	0	1	TOTAL
	1	1	.
HI	7 6.6 0.0	23 23.4 0.0	30
LO	8 8.4 0.0	30 29.6 0.0	38
TOTAL	15	53	68

DF= 1 PROB=0.8218

CHI-SQUARE 0.051

TABLE OF HEMA BY HOFTEN

HEMA	HEMATOCRAT	HOFTEN	
FREQUENCY EXPECTED CELL CHI2	0-2	3-5	TOTAL
	2	0	.
HI	23 23.4 0.0	7 6.6 0.0	30
LO	30 29.6 0.0	8 8.4 0.0	38
TOTAL	53	15	68

DF= 1 PROB=0.8218

CHI-SQUARE 0.051

TABLE OF HEMA BY COOKI

HEMA	HEMATOCRAT	COOKI	
FREQUENCY EXPECTED CELL CHI2	0	1	TOTAL
	2 . .	0 . .	.
HI	26 25.6 0.0	4 4.4 0.0	30
LO	32 32.4 0.0	6 5.6 0.0	38
TOTAL	58	10	68

DF= 1 PROB=0.7764

CHI-SQUARE 0.081

TABLE OF HEMA BY CHIPS

HEMA	HEMATOCRAT	CHIPS	
FREQUENCY EXPECTED CELL CHI2	0	1	TOTAL
	2 . .	0 . .	.
HI	25 24.7 0.0	5 5.3 0.0	30
LO	31 31.3 0.0	7 6.7 0.0	38
TOTAL	56	12	68

DF= 1 PROB=0.8505

CHI-SQUARE 0.036

TABLE OF HEMA BY FRUIT

HEMA	HEMATOCRAT	FRUIT	
FREQUENCY EXPECTED CELL CHI2	0	1	TOTAL
	1 . .	1 . .	.
HI	14 14.6 0.0	16 15.4 0.0	30
LO	19 18.4 0.0	19 19.6 0.0	38
TOTAL	33	35	68

DF= 1 PROB=0.7848

CHI-SQUARE 0.075

TABLE OF HEMA BY CANDY

HEMA	HEMATOCRAT	CANDY	
FREQUENCY EXPECTED CELL CHI2	0	1	TOTAL
	2 . .	0 . .	.
HI	28 26.9 0.0	2 3.1 0.4	30
LO	33 34.1 0.0	5 3.9 0.3	38
TOTAL	61	7	68

DF= 1 PROB=0.3818

CHI-SQUARE 0.765

TABLE OF HEMA BY FJUIC

HEMA	HEMATOCRAT	FJUIC	
FREQUENCY EXPECTED CELL CHI2	0	1	TOTAL
	2 . .	0 . .	.
HI	30 27.8 0.2	0 2.2 2.2	30
LO	33 35.2 0.1	5 2.8 1.7	38
TOTAL	63	5	68

DF= 1 PROB=0.0390

CHI-SQUARE 4.261

TABLE OF HEMA BY FDRNK

HEMA	HEMATOCRAT	FDRNK	
FREQUENCY EXPECTED CELL CHI2	0	1	TOTAL
	2 . .	0 . .	.
HI	30 29.1 0.0	0 0.9 0.9	30
LO	36 36.9 0.0	2 1.1 0.7	38
TOTAL	66	2	68

DF= 1 PROB=0.2021

CHI-SQUARE 1.627

TABLE OF HEMA BY CHEES

HEMA	HEMATOCRAT	CHEES	
FREQUENCY EXPECTED CELL CHI2	0	1	TOTAL
	2 . .	0 . .	.
HI	25 26.0 0.0	5 4.0 0.3	30
LO	34 33.0 0.0	4 5.0 0.2	38
TOTAL	59	9	68

DF= 1 PROB=0.4581

CHI-SQUARE 0.550

TABLE OF HEMA BY MILK

HEMA	HEMATOCRAT	MILK	
FREQUENCY EXPECTED CELL CHI2	0	1	TOTAL
	1 . .	1 . .	.
HI	29 27.4 0.1	1 2.6 1.0	30
LO	33 34.6 0.1	5 3.4 0.8	38
TOTAL	62	6	68

DF= 1 PROB=0.1561

CHI-SQUARE 2.011

TABLE OF HEMA BY OTHERS

HEMA	HEMATOCRAT	OTHERS	
FREQUENCY EXPECTED CELL CHI2	0	1	TOTAL
	1 . .	1 . .	.
HI	15 15.4 0.0	15 14.6 0.0	30
LO	20 19.6 0.0	18 18.4 0.0	38
TOTAL	35	33	68

DF= 1 PROB=0.8293

CHI-SQUARE 0.046

TABLE OF HEMA BY AHOME

HEMA	HEMATOCRAT	AHOME	
FREQUENCY EXPECTED CELL CHI2	NONE	1-UP	TOTAL
	1 . .	1 . .	.
HI	13 11.0 0.4	17 19.0 0.2	30
LO	12 14.0 0.3	26 24.0 0.2	38
TOTAL	25	43	68

DF= 1 PROB=0.3182

CHI-SQUARE 0.996

TABLE OF HT BY NUTSUP

HT	NUTSUP		
FREQUENCY EXPECTED CELL CHI2	NO	YES	TOTAL
	0 . .	1 . .	.
HI	2 2.7 0.2	35 34.3 0.0	37
LO	3 2.3 0.2	29 29.7 0.0	32
TOTAL	5	64	69

DF= 1 PROB=0.5259

CHI-SQUARE 0.402

TABLE OF HT BY CFOOD

HT	CFOOD		
FREQUENCY EXPECTED CELL CHI2	FRY	NOF	TOTAL
	1 . .	0 . .	.
HI	28 29.0 0.0	9 8.0 0.1	37
LO	26 25.0 0.0	6 7.0 0.1	32
TOTAL	54	15	69

DF= 1 PROB=0.5756

CHI-SQUARE 0.313

TABLE OF HT BY AHOME

HT	AHOME		
FREQUENCY EXPECTED CELL CHI2	NONE	1-UP	TOTAL
	0	1	.
HI	14 13.9 0.0	23 23.1 0.0	37
LO	12 12.1 0.0	20 19.9 0.0	32
TOTAL	26	43	69

DF= 1 PROB=0.9770

CHI-SQUARE 0.001

TABLE OF HT BY HOFTEN

HT	HOFTEN		
FREQUENCY EXPECTED CELL CHI2	0-2	3-5	TOTAL
	1	0	.
HI	27 29.0 0.1	10 8.0 0.5	37
LO	27 25.0 0.2	5 7.0 0.6	32
TOTAL	54	15	69

DF= 1 PROB=0.2522

CHI-SQUARE 1.311

TABLE OF HT BY NFOOD

HT	NFOOD		
FREQUENCY EXPECTED CELL CHI2	NO	YES	TOTAL
	1	0	.
HI	33 33.8 0.0	4 3.2 0.2	37
LO	30 29.2 0.0	2 2.8 0.2	32
TOTAL	63	6	69

DF= 1 PROB=0.5025

CHI-SQUARE 0.450

TABLE OF HT BY CHIPS

HT	CHIPS		
FREQUENCY EXPECTED CELL CHI2	0	1	TOTAL
	0	1	.
HI	31 31.1 0.0	6 5.9 0.0	37
LO	27 26.9 0.0	5 5.1 0.0	32
TOTAL	58	11	69

DF= 1 PROB=0.9467

CHI-SQUARE 0.004

TABLE OF HT BY SODA

HT	SODA		
FREQUENCY EXPECTED CELL CHI2	0	1	TOTAL
	0	1	.
HI	8 8.6 0.0	29 28.4 0.0	37
LO	8 7.4 0.0	24 24.6 0.0	32
TOTAL	16	53	69

DF= 1 PROB=0.7402

CHI-SQUARE 0.110

TABLE OF HT BY CANDY

HT	CANDY		
FREQUENCY EXPECTED CELL CHI2	0	1	TOTAL
	0	1	.
HI	32 33.8 0.1	5 3.2 1.0	37
LO	31 29.2 0.1	1 2.8 1.1	32
TOTAL	63	6	69

DF= 1 PROB=0.1267

CHI-SQUARE 2.332

TABLE OF HT BY COOKI

HT	COOKI		
FREQUENCY EXPECTED CELL CHI2	0	1	TOTAL
	1	0	.
HI	31 31.6 0.0	6 5.4 0.1	37
LO	28 27.4 0.0	4 4.6 0.1	32
TOTAL	59	10	69

DF= 1 PROB=0.6619

CHI-SQUARE 0.191

TABLE OF HT BY FDRNK

HT	FDRNK		
FREQUENCY EXPECTED CELL CHI2	0	1	TOTAL
	1	0	.
HI	36 35.9 0.0	1 1.1 0.0	37
LO	31 31.1 0.0	1 0.9 0.0	32
TOTAL	67	2	69

DF= 1 PROB=0.9170

CHI-SQUARE 0.011

TABLE OF HT BY FRUIT

HT	FRUIT		
FREQUENCY EXPECTED CELL CHI2	0	1	TOTAL
	1 . .	0 . .	.
HI	18 17.7 0.0	19 19.3 0.0	37
LO	15 15.3 0.0	17 16.7 0.0	32
TOTAL	33	36	69

DF= 1 PROB=0.8831

CHI-SQUARE 0.022

TABLE OF HT BY MILK

HT	MILK		
FREQUENCY EXPECTED CELL CHI2	0	1	TOTAL
	1 . .	0 . .	.
HI	33 33.2 0.0	4 3.8 0.0	37
LO	29 28.8 0.0	3 3.2 0.0	32
TOTAL	62	7	69

DF= 1 PROB=0.8438

CHI-SQUARE 0.039

TABLE OF HT BY FJUIC

HT	FJUIC		
FREQUENCY EXPECTED CELL CHI2	0	1	TOTAL
	1 . .	0 . .	.
HI	33 34.3 0.1	4 2.7 0.6	37
LO	31 29.7 0.1	1 2.3 0.8	32
TOTAL	64	5	69

DF= 1 PROB=0.2194

CHI-SQUARE 1.508

TABLE OF HT BY OTHERS

HT	OTHERS		
FREQUENCY EXPECTED CELL CHI2	0	1	TOTAL
	1 . .	0 . .	.
HI	21 18.8 0.3	16 18.2 0.3	37
LO	14 16.2 0.3	18 15.8 0.3	32
TOTAL	35	34	69

DF= 1 PROB=0.2812

CHI-SQUARE 1.161

TABLE OF HT BY CHEES

HT	CHEES		
FREQUENCY EXPECTED CELL CHI2	0	1	TOTAL
	1 . .	0 . .	.
HI	33 32.2 0.0	4 4.8 0.1	37
LO	27 27.8 0.0	5 4.2 0.2	32
TOTAL	60	9	69

DF= 1 PROB=0.5538

CHI-SQUARE 0.351

TABLE OF WT BY AHOME

WT	AHOME		
FREQUENCY EXPECTED CELL CHI2	NONE	1-UP	TOTAL
	0 . .	1 . .	.
HI	14 11.3 0.6	16 18.7 0.4	30
LO	12 14.7 0.5	27 24.3 0.3	39
TOTAL	26	43	69

DF= 1 PROB=0.1767

CHI-SQUARE 1.825

TABLE OF WT BY NUTSUP

WT	NUTSUP		
FREQUENCY EXPECTED CELL CHI2	NO	YES	TOTAL
	0 . .	1 . .	.
HI	3 2.2 0.3	27 27.8 0.0	30
LO	2 2.8 0.2	37 36.2 0.0	39
TOTAL	5	64	69

DF= 1 PROB=0.4390

CHI-SQUARE 0.599

TABLE OF WT BY NFOOD

WT	NFOOD		
FREQUENCY EXPECTED CELL CHI2	NO	YES	TOTAL
	1 . .	0 . .	.
HI	27 27.4 0.0	3 2.6 0.1	30
LO	36 35.6 0.0	3 3.4 0.0	39
TOTAL	63	6	69

DF= 1 PROB=0.7359

CHI-SQUARE 0.114

TABLE OF WT BY CFOOD

WT	CFOOD		
FREQUENCY EXPECTED CELL CHI2	FRY	NOF	TOTAL
	1	0	.
HI	23 23.5 0.0	7 6.5 0.0	30
LO	31 30.5 0.0	8 8.5 0.0	39
TOTAL	54	15	69

DF= 1 PROB=0.7783

CHI-SQUARE 0.079

TABLE OF WT BY SODA

WT	SODA		
FREQUENCY EXPECTED CELL CHI2	0	1	TOTAL
	0	1	.
HI	5 7.0 0.6	25 23.0 0.2	30
LO	11 9.0 0.4	28 30.0 0.1	39
TOTAL	16	53	69

DF= 1 PROB=0.2602

CHI-SQUARE 1.267

TABLE OF WT BY HOFTEN

WT	HOFTEN		
FREQUENCY EXPECTED CELL CHI2	0-2	3-5	TOTAL
	0	1	.
HI	28 23.9 0.7	2 6.1 2.7	30
LO	27 31.1 0.5	12 7.9 2.1	39
TOTAL	55	14	69

DF= 1 PROB=0.0136

CHI-SQUARE 6.091

TABLE OF WT BY COOKI

WT	COOKI		
FREQUENCY EXPECTED CELL CHI2	0	1	TOTAL
	1	0	.
HI	27 25.7 0.1	3 4.3 0.4	30
LO	32 33.3 0.1	7 5.7 0.3	39
TOTAL	59	10	69

DF= 1 PROB=0.3525

CHI-SQUARE 0.865

TABLE OF WT BY CHIPS

WT	CHIPS		
FREQUENCY EXPECTED CELL CHI2	0	1	TOTAL
	1	0	.
HI	26 24.8 0.1	4 5.2 0.3	30
LO	31 32.2 0.0	8 6.8 0.2	39
TOTAL	57	12	69

DF= 1 PROB=0.4354

CHI-SQUARE 0.608

TABLE OF WT BY FRUIT

WT	FRUIT		
FREQUENCY EXPECTED CELL CHI2	0	1	TOTAL
	1	0	.
HI	14 14.3 0.0	16 15.7 0.0	30
LO	19 18.7 0.0	20 20.3 0.0	39
TOTAL	33	36	69

DF= 1 PROB=0.8657

CHI-SQUARE 0.029

TABLE OF WT BY CANDY

WT	CANDY		
FREQUENCY EXPECTED CELL CHI2	0	1	TOTAL
	1	0	.
HI	27 27.0 0.0	3 3.0 0.0	30
LO	35 35.0 0.0	4 4.0 0.0	39
TOTAL	62	7	69

DF= 1 PROB=0.9721

CHI-SQUARE 0.001

TABLE OF WT BY FJUIC

WT	FJUIC		
FREQUENCY EXPECTED CELL CHI2	0	1	TOTAL
	1	0	.
HI	27 27.8 0.0	3 2.2 0.3	30
LO	37 36.2 0.0	2 2.8 0.2	39
TOTAL	64	5	69

DF= 1 PROB=0.4390

CHI-SQUARE 0.599

TABLE OF WT BY FDRNK

WT	FDRNK		
FREQUENCY EXPECTED CELL CHI2	0	1	TOTAL
	1 . .	0 . .	.
HI	29 29.1 0.0	1 0.9 0.0	30
LO	38 37.9 0.0	1 1.1 0.0	39
TOTAL	67	2	69

DF= 1 PROB=0.8502

CHI-SQUARE 0.036

TABLE OF WT BY CHEES

WT	CHEES		
FREQUENCY EXPECTED CELL CHI2	0	1	TOTAL
	1 . .	0 . .	.
HI	25 26.1 0.0	5 3.9 0.3	30
LO	35 33.9 0.0	4 5.1 0.2	39
TOTAL	60	9	69

DF= 1 PROB=0.4332

CHI-SQUARE 0.614

TABLE OF WT BY MILK

WT	MILK		
FREQUENCY EXPECTED CELL CHI2	0	1	TOTAL
	0 . .	1 . .	.
HI	28 27.4 0.0	2 2.6 0.1	30
LO	35 35.6 0.0	4 3.4 0.1	39
TOTAL	63	6	69

DF= 1 PROB=0.5999

CHI-SQUARE 0.275

TABLE OF WT BY OTHERS

WT	OTHERS		
FREQUENCY EXPECTED CELL CHI2	0	1	TOTAL
	0 . .	1 . .	.
HI	16 15.7 0.0	14 14.3 0.0	30
LO	20 20.3 0.0	19 18.7 0.0	39
TOTAL	36	33	69

DF= 1 PROB=0.8657

CHI-SQUARE 0.029

TABLE OF WTSP BY CFOOD

WTSP WEIGHT AT START OF PREGNANCY CFOOD

FREQUENCY EXPECTED CELL CHI2	FRY	NOF	TOTAL
	4 . .	1 . .	.
HI	22 21.2 0.0	5 5.8 0.1	27
LO	29 29.8 0.0	9 8.2 0.1	38
TOTAL	51	14	65

DF= 1 PROB=0.6176

CHI-SQUARE 0.249

TABLE OF WTSP BY AHOME

WTSP WEIGHT AT START OF PREGNANCY AHOME

FREQUENCY EXPECTED CELL CHI2	NONE	1-UP	TOTAL
	1 . .	4 . .	.
HI	11 10.4 0.0	16 16.6 0.0	27
LO	14 14.6 0.0	24 23.4 0.0	38
TOTAL	25	40	65

DF= 1 PROB=0.7502

CHI-SQUARE 0.101

TABLE OF WTSP BY NUTSUP

WTSP	WEIGHT AT START OF PREGNANCY	NUTSUP	
FREQUENCY EXPECTED CELL CHI2	NO	YES	TOTAL
	1 . .	4 . .	.
HI	3 1.7 1.1	24 25.3 0.1	27
LO	1 2.3 0.8	37 35.7 0.1	38
TOTAL	4	61	65

DF= 1 PROB=0.1610

CHI-SQUARE 1.965

TABLE OF WTSP BY HOFTEN

WTSP	WEIGHT AT START OF PREGNANCY	HOFTEN	
FREQUENCY EXPECTED CELL CHI2	0-2	3-5	TOTAL
	4 . .	1 . .	.
HI	26 21.2 1.1	1 5.8 4.0	27
LO	25 29.8 0.8	13 8.2 2.8	38
TOTAL	51	14	65

DF= 1 PROB=0.0032

CHI-SQUARE 8.693

TABLE OF WTSP BY CHIPS

WTSP WEIGHT AT START OF PREGNANCY CHIPS

FREQUENCY EXPECTED CELL CHI2	0	1	TOTAL
	5	0	
HI	24 22.0 0.2	3 5.0 0.8	27
LO	29 31.0 0.1	9 7.0 0.6	38
TOTAL	53	12	65

DF= 1 PROB=0.1979

CHI-SQUARE 1.658

TABLE OF WTSP BY CANDY

WTSP WEIGHT AT START OF PREGNANCY CANDY

FREQUENCY EXPECTED CELL CHI2	0	1	TOTAL
	5	0	
HI	24 24.1 0.0	3 2.9 0.0	27
LO	34 33.9 0.0	4 4.1 0.0	38
TOTAL	58	7	65

DF= 1 PROB=0.9403

CHI-SQUARE 0.006

TABLE OF WTSP BY NFOOD

WTSP WEIGHT AT START OF PREGNANCY NFOOD

FREQUENCY EXPECTED CELL CHI2	NO	YES	TOTAL
	5 . .	0 . .	.
HI	24 24.5 0.0	3 2.5 0.1	27
LO	35 34.5 0.0	3 3.5 0.1	38
TOTAL	59	6	65

DF= 1 PROB=0.6589

CHI-SQUARE 0.195

TABLE OF WTSP BY SODA

WTSP WEIGHT AT START OF PREGNANCY SODA

FREQUENCY EXPECTED CELL CHI2	0	1	TOTAL
	2 . .	3 . .	.
HI	5 5.8 0.1	22 21.2 0.0	27
LO	9 8.2 0.1	29 29.8 0.0	38
TOTAL	14	51	65

DF= 1 PROB=0.6176

CHI-SQUARE 0.249

TABLE OF WTSP BY FDRNK

WTSP WEIGHT AT START OF PREGNANCY FDRNK

FREQUENCY EXPECTED CELL CHI2	0	1	TOTAL
	5	0	
HI	26 26.2 0.0	1 0.8 0.0	27
LO	37 36.8 0.0	1 1.2 0.0	38
TOTAL	63	2	65

DF= 1 PROB=0.8052

CHI-SQUARE 0.061

TABLE OF WTSP BY MILK

WTSP WEIGHT AT START OF PREGNANCY MILK

FREQUENCY EXPECTED CELL CHI2	0	1	TOTAL
	5	0	
HI	25 24.1 0.0	2 2.9 0.3	27
LO	33 33.9 0.0	5 4.1 0.2	38
TOTAL	58	7	65

DF= 1 PROB=0.4611

CHI-SQUARE 0.543

TABLE OF WTSP BY COOKI

WTSP WEIGHT AT START OF PREGNANCY COOKI

FREQUENCY EXPECTED CELL CHI2	0	1	TOTAL
	5 . .	0 . .	.
HI	24 22.8 0.1	3 4.2 0.3	27
LO	31 32.2 0.0	7 5.8 0.2	38
TOTAL	55	10	65

DF= 1 PROB=0.4209

CHI-SQUARE 0.648

TABLE OF WTSP BY FRUIT

WTSP WEIGHT AT START OF PREGNANCY FRUIT

FREQUENCY EXPECTED CELL CHI2	0	1	TOTAL
	2 . .	3 . .	.
HI	14 13.3 0.0	13 13.7 0.0	27
LO	18 18.7 0.0	20 19.3 0.0	38
TOTAL	32	33	65

DF= 1 PROB=0.7216

CHI-SQUARE 0.127

TABLE OF WTSP BY OTHERS

WTSP WEIGHT AT START OF PREGNANCY OTHERS

FREQUENCY / EXPECTED / CELL CHI2	0	1	TOTAL
	3	2	.
	.	.	
	.	.	
HI	12	15	27
	13.7	13.3	
	0.2	0.2	
LO	21	17	38
	19.3	18.7	
	0.2	0.2	
TOTAL	33	32	65

DF= 1 PROB=0.3899

CHI-SQUARE 0.739

TABLE OF TESTR BY AHOME

TESTR DIABETES SCREEN TEST RESULTS AHOME

FREQUENCY / EXPECTED / CELL CHI2	NONE	1-UP	TOTAL
	1	3	.
	.	.	
	.	.	
HI	11	14	25
	9.5	15.5	
	0.2	0.2	
LO	14	27	41
	15.5	25.5	
	0.2	0.1	
TOTAL	25	41	66

DF= 1 PROB=0.4234

CHI-SQUARE 0.641

TABLE OF WTSP BY FJUIC

WTSP WEIGHT AT START OF PREGNANCY	FJUIC		
FREQUENCY EXPECTED CELL CHI2	0	1	TOTAL
	5	0	.
HI	24 24.9 0.0	3 2.1 0.4	27
LO	36 35.1 0.0	2 2.9 0.3	38
TOTAL	60	5	65

DF= 1 PROB=0.3833

CHI-SQUARE 0.760

TABLE OF WTSP BY CHEES

WTSP WEIGHT AT START OF PREGNANCY	CHEES		
FREQUENCY EXPECTED CELL CHI2	0	1	TOTAL
	4	1	.
HI	23 23.7 0.0	4 3.3 0.1	27
LO	34 33.3 0.0	4 4.7 0.1	38
TOTAL	57	8	65

DF= 1 PROB=0.6040

CHI-SQUARE 0.269

TABLE OF TESTR BY NFOOD

TESTR DIABETES SCREEN TEST RESULTS NFOOD

FREQUENCY EXPECTED CELL CHI2	NO	YES	TOTAL
	4 . .	0 . .	.
HI	21 22.7 0.1	4 2.3 1.3	25
LO	39 37.3 0.1	2 3.7 0.8	41
TOTAL	60	6	66

DF= 1 PROB=0.1274

CHI-SQUARE 2.324

TABLE OF TESTR BY SODA

TESTR DIABETES SCREEN TEST RESULTS SODA

FREQUENCY EXPECTED CELL CHI2	0	1	TOTAL
	2 . .	2 . .	.
HI	4 5.3 0.3	21 19.7 0.1	25
LO	10 8.7 0.2	31 32.3 0.1	41
TOTAL	14	52	66

DF= 1 PROB=0.4186

CHI-SQUARE 0.654

TABLE OF TESTR BY NUTSUP

TESTR DIABETES SCREEN TEST RESULTS NUTSUP

FREQUENCY EXPECTED CELL CHI2	NO	YES	TOTAL
	0	4	.
.	.	.	
HI	2	23	25
	1.9	23.1	
	0.0	0.0	
LO	3	38	41
	3.1	37.9	
	0.0	0.0	
TOTAL	5	61	66

DF= 1 PROB=0.9190

CHI-SQUARE 0.010

TABLE OF TESTR BY CFOOD

TESTR DIABETES SCREEN TEST RESULTS CFOOD

FREQUENCY EXPECTED CELL CHI2	FRY	NOF	TOTAL
	2	2	.
.	.	.	
HI	19	6	25
	20.1	4.9	
	0.1	0.2	
LO	34	7	41
	32.9	8.1	
	0.0	0.1	
TOTAL	53	13	66

= 1 PROB=0.4925

CHI-SQUARE 0.471

TABLE OF TESTR BY COOKI

TESTR DIABETES SCREEN TEST RESULTS			
FREQUENCY EXPECTED CELL CHI2	0	1	TOTAL
	4 . .	0 . .	.
HI	22 21.2 0.0	3 3.8 0.2	25
LO	34 34.8 0.0	7 6.2 0.1	41
TOTAL	56	10	66

DF= 1 PROB=0.5771

CHI-SQUARE 0.311

TABLE OF TESTR BY FRUIT

TESTR DIABETES SCREEN TEST RESULTS FRUIT			
FREQUENCY EXPECTED CELL CHI2	0	1	TOTAL
	3 . .	1 . .	.
HI	8 11.7 1.2	17 13.3 1.1	25
LO	23 19.3 0.7	18 21.7 0.6	41
TOTAL	31	35	66

DF= 1 PROB=0.0571

CHI-SQUARE 3.621

TABLE OF TESTR BY HOFTEN

TESTR DIABETES SCREEN TEST RESULTS HOFTEN

FREQUENCY EXPECTED CELL CHI2	0-2	3-5	TOTAL
	4 . .	0 . .	.
HI	21 19.3 0.1	4 5.7 0.5	25
LO	30 31.7 0.1	11 9.3 0.3	41
TOTAL	51	15	66

DF= 1 PROB=0.3085

CHI-SQUARE 1.037

TABLE OF TESTR BY CHIPS

TESTR DIABETES SCREEN TEST RESULTS CHIPS

FREQUENCY EXPECTED CELL CHI2	0	1	TOTAL
	3 . .	1 . .	.
HI	21 20.8 0.0	4 4.2 0.0	25
LO	34 34.2 0.0	7 6.8 0.0	41
TOTAL	55	11	66

DF= 1 PROB=0.9096

CHI-SQUARE 0.013

TABLE OF TESTR BY FJUIC

TESTR DIABETES SCREEN TEST RESULTS FJUIC

FREQUENCY EXPECTED CELL CHI2	0	1	TOTAL
	4 . .	0 . .	.
HI	23 23.1 0.0	2 1.9 0.0	25
LO	38 37.9 0.0	3 3.1 0.0	41
TOTAL	61	5	66

DF= 1 PROB=0.9190

CHI-SQUARE 0.010

TABLE OF TESTR BY CHEES

TESTR DIABETES SCREEN TEST RESULTS CHEES

FREQUENCY EXPECTED CELL CHI2	0	1	TOTAL
	3 . .	1 . .	.
HI	22 22.0 0.0	3 3.0 0.0	25
LO	36 36.0 0.0	5 5.0 0.0	41
TOTAL	58	8	66

DF= 1 PROB=0.9812

CHI-SQUARE 0.001

TABLE OF TESTR BY CANDY

TESTR DIABETES SCREEN TEST RESULTS CANDY

FREQUENCY EXPECTED CELL CHI2	0	1	TOTAL
	4 . .	0 . .	.
HI	25 22.3 0.3	0 2.7 2.7	25
LO	34 36.7 0.2	7 4.3 1.6	41
TOTAL	59	7	66

DF= 1 PROB=0.0289

CHI-SQUARE 4.775

TABLE OF TESTR BY FDRNK

TESTR DIABETES SCREEN TEST RESULTS FDRNK

FREQUENCY EXPECTED CELL CHI2	0	1	TOTAL
	4 . .	0 . .	.
HI	24 24.2 0.0	1 0.8 0.1	25
LO	40 39.8 0.0	1 1.2 0.0	41
TOTAL	64	2	66

DF= 1 PROB=0.7197

CHI-SQUARE 0.129

TABLE OF TESTR BY MILK

TESTR DIABETES SCREEN TEST RESULTS MILK

FREQUENCY EXPECTED CELL CHI2	0	1	TOTAL
	4 . .	0 . .	.
HI	24 22.3 0.1	1 2.7 1.0	25
LO	35 36.7 0.1	6 4.3 0.6	41
TOTAL	59	7	66

DF= 1 PROB=0.1735

CHI-SQUARE 1.852

TABLE OF TESTR BY OTHERS

TESTR DIABETES SCREEN TEST RESULTS OTHERS

FREQUENCY EXPECTED CELL CHI2	0	1	TOTAL
	2 . .	2 . .	.
HI	12 12.9 0.1	13 12.1 0.1	25
LO	22 21.1 0.0	19 19.9 0.0	41
TOTAL	34	32	66

DF= 1 PROB=0.6555

CHI-SQUARE 0.199

TABLE OF AGE BY NUTSUP

AGE	NUTSUP		
FREQUENCY EXPECTED CELL CHI2	NO	YES	TOTAL
HI	3 2.4 0.2	30 30.6 0.0	33
LO	2 2.6 0.2	35 34.4 0.0	37
TOTAL	5	65	70

DF= 1 PROB=0.5501

CHI-SQUARE 0.357

TABLE OF AGE BY CFOOD

AGE	CFOOD		
FREQUENCY EXPECTED CELL CHI2	FRY	NOF	TOTAL
HI	24 25.9 0.1	9 7.1 0.5	33
LO	31 29.1 0.1	6 7.9 0.5	37
TOTAL	55	15	70

DF= 1 PROB=0.2604

CHI-SQUARE 1.266

TABLE OF AGE BY AHOME

AGE	AHOME		
FREQUENCY EXPECTED CELL CHI2	NONE	1-UP	TOTAL
HI	15 12.3 0.6	18 20.7 0.4	33
LO	11 13.7 0.5	26 23.3 0.3	37
TOTAL	26	44	70

DF= 1 PROB=0.1741

CHI-SQUARE 1.847

TABLE OF AGE BY HOFTEN

AGE	HOFTEN		
FREQUENCY EXPECTED CELL CHI2	0-2	3-5	TOTAL
HI	30 25.9 0.6	3 7.1 2.3	33
LO	25 29.1 0.6	12 7.9 2.1	37
TOTAL	55	15	70

DF= 1 PROB=0.0175

CHI-SQUARE 5.644

TABLE OF AGE BY NFOOD

AGE	NFOOD		
FREQUENCY EXPECTED CELL CHI2	NO	YES	TOTAL
HI	31 30.2 0.0	2 2.8 0.2	33
LO	33 33.8 0.0	4 3.2 0.2	37
TOTAL	64	6	70

DF= 1 PROB=0.4785

CHI-SQUARE 0.502

TABLE OF AGE BY CHIPS

AGE	CHIPS		
FREQUENCY EXPECTED CELL CHI2	0	1	TOTAL
HI	27 27.3 0.0	6 5.7 0.0	33
LO	31 30.7 0.0	6 6.3 0.0	37
TOTAL	58	12	70

DF= 1 PROB=0.8276

CHI-SQUARE 0.047

TABLE OF AGE BY SODA

AGE	SODA		
FREQUENCY EXPECTED CELL CHI2	0	1	TOTAL
HI	10 7.5 0.8	23 25.5 0.2	33
LO	6 8.5 0.7	31 28.5 0.2	37
TOTAL	16	54	70

DF= 1 PROB=0.1612

CHI-SQUARE 1.963

TABLE OF AGE BY CANDY

AGE	CANDY		
FREQUENCY EXPECTED CELL CHI2	0	1	TOTAL
HI	30 29.7 0.0	3 3.3 0.0	33
LO	33 33.3 0.0	4 3.7 0.0	37
TOTAL	63	7	70

DF= 1 PROB=0.8108

CHI-SQUARE 0.057

TABLE OF AGE BY COOKI

AGE	COOKI		
FREQUENCY EXPECTED CELL CHI2	0	1	TOTAL
HI	28 28.3 0.0	5 4.7 0.0	33
LO	32 31.7 0.0	5 5.3 0.0	37
TOTAL	60	10	70

DF= 1 PROB=0.8450

CHI-SQUARE 0.038

TABLE OF AGE BY FDRNK

AGE	FDRNK		
FREQUENCY EXPECTED CELL CHI2	0	1	TOTAL
HI	32 32.1 0.0	1 0.9 0.0	33
LO	36 35.9 0.0	1 1.1 0.0	37
TOTAL	68	2	70

DF= 1 PROB=0.9345

CHI-SQUARE 0.007

TABLE OF AGE BY FRUIT

AGE	FRUIT		
FREQUENCY EXPECTED CELL CHI2	0	1	TOTAL
HI	20 16.0 1.0	13 17.0 0.9	33
LO	14 18.0 0.9	23 19.0 0.8	37
TOTAL	34	36	70

DF= 1 PROB=0.0571

CHI-SQUARE 3.620

TABLE OF AGE BY MILK

AGE	MILK		
FREQUENCY EXPECTED CELL CHI2	0	1	TOTAL
HI	29 29.7 0.0	4 3.3 0.1	33
LO	34 33.3 0.0	3 3.7 0.1	37
TOTAL	63	7	70

DF= 1 PROB=0.5764

CHI-SQUARE 0.312

TABLE OF AGE BY FJUIC

AGE	FJUIC		
FREQUENCY EXPECTED CELL CHI2	0	1	TOTAL
HI	31 30.6 0.0	2 2.4 0.1	33
LO	34 34.4 0.0	3 2.6 0.0	37
TOTAL	65	5	70

DF= 1 PROB=0.7399

CHI-SQUARE 0.110

TABLE OF AGE BY OTHERS

AGE	OTHERS		
FREQUENCY EXPECTED CELL CHI2	0	1	TOTAL
HI	17 17.0 0.0	16 16.0 0.0	33
LO	19 19.0 0.0	18 18.0 0.0	37
TOTAL	36	34	70

DF= 1 PROB=0.9891

CHI-SQUARE 0.000

TABLE OF AGE BY CHEES

AGE	CHEES		
FREQUENCY / EXPECTED / CELL CHI2	0	1	TOTAL
HI	28	5	33
	28.8	4.2	
	0.0	0.1	
LO	33	4	37
	32.2	4.8	
	0.0	0.1	
TOTAL	61	9	70

DF= 1 PROB=0.5881

CHI-SQUARE 0.293

TABLE OF INCOME BY AHOME

INCOME	AHOME		
FREQUENCY / EXPECTED / CELL CHI2	NONE	1-UP	TOTAL
HI	7	22	29
	10.8	18.2	
	1.3	0.8	
LO	19	22	41
	15.2	25.8	
	0.9	0.6	
TOTAL	26	44	70

DF= 1 PROB=0.0582

CHI-SQUARE 3.587

TABLE OF INCOME BY NUTSUP

INCOME	NUTSUP		
FREQUENCY / EXPECTED / CELL CHI2	NO	YES	TOTAL
HI	2	27	29
	2.1	26.9	
	0.0	0.0	
LO	3	38	41
	2.9	38.1	
	0.0	0.0	
TOTAL	5	65	70

DF= 1 PROB=0.9463

CHI-SQUARE 0.005

TABLE OF INCOME BY NFOOD

INCOME	NFOOD		
FREQUENCY / EXPECTED / CELL CHI2	NO	YES	TOTAL
HI	26	3	29
	26.5	2.5	
	0.0	0.1	
LO	38	3	41
	37.5	3.5	
	0.0	0.1	
TOTAL	64	6	70

DF= 1 PROB=0.6558

CHI-SQUARE 0.199

TABLE OF INCOME BY CFOOD

INCOME / FREQUENCY / EXPECTED / CELL CHI2	FRY	NOF	TOTAL
HI	24	5	29
	22.8	6.2	
	0.1	0.2	
LO	31	10	41
	32.2	8.8	
	0.0	0.2	
TOTAL	55	15	70

DF= 1 PROB=0.4727

CHI-SQUARE 0.516

TABLE OF INCOME BY SODA

INCOME / FREQUENCY / EXPECTED / CELL CHI2	0	1	TOTAL
HI	7	22	29
	6.6	22.4	
	0.0	0.0	
LO	9	32	41
	9.4	31.6	
	0.0	0.0	
TOTAL	16	54	70

DF= 1 PROB=0.8301

CHI-SQUARE 0.046

TABLE OF INCOME BY HOFTEN

INCOME / FREQUENCY / EXPECTED / CELL CHI2	0-2	3-5	TOTAL
HI	22	7	29
	22.8	6.2	
	0.0	0.1	
LO	33	8	41
	32.2	8.8	
	0.0	0.1	
TOTAL	55	15	70

DF= 1 PROB=0.6422

CHI-SQUARE 0.216

TABLE OF INCOME BY COOKI

INCOME / FREQUENCY / EXPECTED / CELL CHI2	0	1	TOTAL
HI	24	5	29
	24.9	4.1	
	0.0	0.2	
LO	36	5	41
	35.1	5.9	
	0.0	0.1	
TOTAL	60	10	70

DF= 1 PROB=0.5523

CHI-SQUARE 0.353

TABLE OF INCOME BY CHIPS

INCOME	CHIPS		
FREQUENCY / EXPECTED / CELL CHI2	0	1	TOTAL
HI	21	8	29
	24.0	5.0	
	0.4	1.8	
LO	37	4	41
	34.0	7.0	
	0.3	1.3	
TOTAL	58	12	70

DF= 1 PROB=0.0512

CHI-SQUARE 3.802

TABLE OF INCOME BY FRUIT

INCOME	FRUIT		
FREQUENCY / EXPECTED / CELL CHI2	0	1	TOTAL
HI	19	10	29
	14.1	14.9	
	1.7	1.6	
LO	15	26	41
	19.9	21.1	
	1.2	1.1	
TOTAL	34	36	70

DF= 1 PROB=0.0170

CHI-SQUARE 5.692

TABLE OF INCOME BY CANDY

INCOME	CANDY		
FREQUENCY / EXPECTED / CELL CHI2	0	1	TOTAL
HI	26	3	29
	26.1	2.9	
	0.0	0.0	
LO	37	4	41
	36.9	4.1	
	0.0	0.0	
TOTAL	63	7	70

DF= 1 PROB=0.9355

CHI-SQUARE 0.007

TABLE OF INCOME BY FJUIC

INCOME	FJUIC		
FREQUENCY / EXPECTED / CELL CHI2	0	1	TOTAL
HI	27	2	29
	26.9	2.1	
	0.0	0.0	
LO	38	3	41
	38.1	2.9	
	0.0	0.0	
TOTAL	65	5	70

DF= 1 PROB=0.9463

CHI-SQUARE 0.005

TABLE OF INCOME BY FDRNK

INCOME	FDRNK		
FREQUENCY EXPECTED CELL CHI2	0	1	TOTAL
HI	29 28.2 0.0	0 0.8 0.8	29
LO	39 39.8 0.0	2 1.2 0.6	41
TOTAL	68	2	70

DF= 1 PROB=0.2275

CHI-SQUARE 1.456

TABLE OF INCOME BY CHEES

INCOME	CHEES		
FREQUENCY EXPECTED CELL CHI2	0	1	TOTAL
HI	23 25.3 0.2	6 3.7 1.4	29
LO	38 35.7 0.1	3 5.3 1.0	41
TOTAL	61	9	70

DF= 1 PROB=0.0997

CHI-SQUARE 2.711

TABLE OF INCOME BY MILK

INCOME	MILK		
FREQUENCY EXPECTED CELL CHI2	0	1	TOTAL
HI	25 26.1 0.0	4 2.9 0.4	29
LO	38 36.9 0.0	3 4.1 0.3	41
TOTAL	63	7	70

DF= 1 PROB=0.3736

CHI-SQUARE 0.792

TABLE OF MORSIC BY NUTSUP

MORSIC	MORNING SICKNESS	NUTSUP	
FREQUENCY EXPECTED CELL CHI2	NO	YES	TOTAL
NO	2 2.3 0.0	30 29.7 0.0	32
YES	3 2.7 0.0	35 35.3 0.0	38
TOTAL	5	65	70

DF= 1 PROB=0.7901

CHI-SQUARE 0.071

TABLE OF INCOME BY OTHERS

INCOME	OTHERS		
FREQUENCY EXPECTED CELL CHI2	0	1	TOTAL
HI	15 14.9 0.0	14 14.1 0.0	29
LO	21 21.1 0.0	20 19.9 0.0	41
TOTAL	36	34	70

DF= 1 PROB=0.9668

CHI-SQUARE 0.002

TABLE OF MORSIC BY CFOOD

MORSIC	MORNING SICKNESS	CFOOD	
FREQUENCY EXPECTED CELL CHI2	FRY	NOF	TOTAL
NO	23 25.1 0.2	9 6.9 0.7	32
YES	32 29.9 0.2	6 8.1 0.6	38
TOTAL	55	15	70

DF= 1 PROB=0.2102

CHI-SQUARE 1.570

TABLE OF MORSIC BY AHOME

MORSIC	MORNING SICKNESS	AHOME	
FREQUENCY EXPECTED CELL CHI2	NONE	1-UP	TOTAL
NO	12 11.9 0.0	20 20.1 0.0	32
YES	14 14.1 0.0	24 23.9 0.0	38
TOTAL	26	44	70

DF= 1 PROB=0.9547

CHI-SQUARE 0.003

TABLE OF MORSIC BY HOFTEN

MORSIC	MORNING SICKNESS	HOFTEN	
FREQUENCY EXPECTED CELL CHI2	0-2	3-5	TOTAL
NO	27 25.1 0.1	5 6.9 0.5	32
YES	28 29.9 0.1	10 8.1 0.4	38
TOTAL	55	15	70

DF= 1 PROB=0.2775

CHI-SQUARE 1.179

TABLE OF MORSIC BY NFOOD

MORSIC	MORNING SICKNESS	NFOOD	
FREQUENCY EXPECTED CELL CHI2	NO	YES	TOTAL
NO	30 29.3 0.0	2 2.7 0.2	32
YES	34 34.7 0.0	4 3.3 0.2	38
TOTAL	64	6	70

DF= 1 PROB=0.5243

CHI-SQUARE 0.405

TABLE OF MORSIC BY CHIPS

MORSIC	MORNING SICKNESS	CHIPS	
FREQUENCY EXPECTED CELL CHI2	0	1	TOTAL
NO	27 26.5 0.0	5 5.5 0.0	32
YES	31 31.5 0.0	7 6.5 0.0	38
TOTAL	58	12	70

DF= 1 PROB=0.7572

CHI-SQUARE 0.096

TABLE OF MORSIC BY SODA

MORSIC	MORNING SICKNESS	SODA	
FREQUENCY EXPECTED CELL CHI2	0	1	TOTAL
NO	8 7.3 0.1	24 24.7 0.0	32
YES	8 8.7 0.1	30 29.3 0.0	38
TOTAL	16	54	70

DF= 1 PROB=0.6952

CHI-SQUARE 0.154

TABLE OF MORSIC BY CANDY

MORSIC	MORNING SICKNESS	CANDY	
FREQUENCY EXPECTED CELL CHI2	0	1	TOTAL
NO	29 28.8 0.0	3 3.2 0.0	32
YES	34 34.2 0.0	4 3.8 0.0	38
TOTAL	63	7	70

DF= 1 PROB=0.8729

CHI-SQUARE 0.026

TABLE OF MORSIC BY COOKI

MORSIC	MORNING SICKNESS	COOKI	
FREQUENCY EXPECTED CELL CHI2	0	1	TOTAL
NO	28 27.4 0.0	4 4.6 0.1	32
YES	32 32.6 0.0	6 5.4 0.1	38
TOTAL	60	10	70

DF= 1 PROB=0.6952

CHI-SQUARE 0.154

TABLE OF MORSIC BY FDRNK

MORSIC	MORNING SICKNESS	FDRNK	
FREQUENCY EXPECTED CELL CHI2	0	1	TOTAL
NO	32 31.1 0.0	0 0.9 0.9	32
YES	36 36.9 0.0	2 1.1 0.8	38
TOTAL	68	2	70

DF= 1 PROB=0.1879

CHI-SQUARE 1.734

TABLE OF MORSIC BY FRUIT

MORSIC	MORNING SICKNESS	FRUIT	
FREQUENCY EXPECTED CELL CHI2	0	1	TOTAL
NO	15 15.5 0.0	17 16.5 0.0	32
YES	19 18.5 0.0	19 19.5 0.0	38
TOTAL	34	36	70

DF= 1 PROB=0.7944

CHI-SQUARE 0.068

TABLE OF MORSIC BY MILK

MORSIC	MORNING SICKNESS	MILK	
FREQUENCY EXPECTED CELL CHI2	0	1	TOTAL
NO	30 28.8 0.1	2 3.2 0.4	32
YES	33 34.2 0.0	5 3.8 0.4	38
TOTAL	63	7	70

DF= 1 PROB=0.3372

CHI-SQUARE 0.921

TABLE OF MORSIC BY FJUIC

MORSIC	MORNING SICKNESS	FJUIC	
FREQUENCY EXPECTED CELL CHI2	0	1	TOTAL
NO	31 29.7 0.1	1 2.3 0.7	32
YES	34 35.3 0.0	4 2.7 0.6	38
TOTAL	65	5	70

DF= 1 PROB=0.2310

CHI-SQUARE 1.435

TABLE OF MORSIC BY OTHERS

MORSIC	MORNING SICKNESS	OTHERS	
FREQUENCY EXPECTED CELL CHI2	0	1	TOTAL
NO	19 16.5 0.4	13 15.5 0.4	32
YES	17 19.5 0.3	21 18.5 0.4	38
TOTAL	36	34	70

DF= 1 PROB=0.2222

CHI-SQUARE 1.490

TABLE OF MORSIC BY CHEES

MORSIC	MORNING SICKNESS	CHEES	
FREQUENCY EXPECTED CELL CHI2	0	1	TOTAL
NO	28 27.9 0.0	4 4.1 0.0	32
YES	33 33.1 0.0	5 4.9 0.0	38
TOTAL	61	9	70

DF= 1 PROB=0.9347

CHI-SQUARE 0.007

VITA

Claire Lyn Turner

Candidate for the Degree of

Master of Science

Thesis: NUTRITIONAL STATUS AND INCIDENCE OF RISK FACTORS OF PATIENTS ATTENDING PRENATAL CLINIC AT THE LAWTON PUBLIC HEALTH SERVICE INDIAN HOSPITAL

Major Field: Food, Nutrition, and Institution Administration

Biographical:

Personal Data: Born in Lawton, Oklahoma, September 8, 1961, the daughter of Mr. and Mrs. George Turner

Education: Graduated from Cache High School, Cache, Oklahoma in May, 1979; received Bachelor of Science in Nutrition from University of Oklahoma in 1984; studied at Oklahoma State University from 1984 to 1986; completed the requirements for the Master of Science degree at Oklahoma State University in May, 1986.

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