A Correlative Study of An At-Risk Population and Low Birth Weight/Infant Mortality in a Northeast Oklahoma City Community

Estacia D. Thrower

Follow this and additional works at: http://dclu.langston.edu/mccabe_theses

Part of the Biology Commons, Maternal, Child Health and Neonatal Nursing Commons, Pediatric Nursing Commons, and the Women's Health Commons

Recommended Citation

This Thesis is brought to you for free and open access by the Student Works at Digital Commons @ Langston University. It has been accepted for inclusion in McCabe Thesis Collection by an authorized administrator of Digital Commons @ Langston University. For more information, please contact jblewis@langston.edu.
The Edwin P. McCabe Honors Program

Senior Thesis

"A Correlative Study of An At-Risk Population and Low Birth Weight/Infant Mortality in a Northeast Oklahoma City Community

Estacia D. Thrower

May 1996

Langston University
Langston, Oklahoma
A CORRELATIVE STUDY OF AN AT-RISK POPULATION AND LOW BIRTH WEIGHT/INFANT MORTALITY IN A NORTHEAST OKLAHOMA CITY COMMUNITY

By

Estacia Diann Thrower
Biology Major
Department of Natural Sciences
School of Arts and Sciences
Langston University
Langston, Oklahoma

Submitted in partial fulfillment of the requirements of the E. P. McCabe Honors Program
May 1996

M. B. Tolson Black Heritage Center
Langston University
Langston, Oklahoma
A CORRELATIVE STUDY OF AN AT-RISK POPULATION AND LOW BIRTH WEIGHT/INFANT MORTALITY IN A NORTHEAST OKLAHOMA CITY COMMUNITY

Thesis Approved:

Rosemary F. Hawkins
Thesis Committee Chairman

Thesis Committee Member

Eddie B. Carr
Thesis Committee Member

Director of the Honors Program

Jean Bell Manning
Vice President for Academic Affairs
ACKNOWLEDGEMENTS

First of all I would like to thank my Lord and Savior Jesus Christ, for without Him nothing is possible. Secondly I am grateful to Dr. Joy Flasch for her unflagging assistance, encouragement, and patience throughout the writing of this thesis. Thanks to Dr. Rosemary Harkins-Carter, my committee chairman; Mrs. Eddie Carr, Division Director of Perinatal and Children's Services; and Dr. Donna Thomas, Executive Director of the center in which the study was conducted, for their tireless efforts to ensure the highest quality in all facets of this study. To Mr. Robert Allen and Dr. Saigeetha Sangiah, my thanks for their input in assisting me to develop the questionnaire for this study. Thanks also to Dr. George Acquaah for his valuable assistance with the statistical analysis on the results of the questionnaire. Finally a special thanks to my family for their perpetual love, encouragement, and support and especially to my father for creating the attractive histograms to show the results of this study.
# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Chapter</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>I. INTRODUCTION</strong></td>
<td>1</td>
</tr>
<tr>
<td>Background of the Study</td>
<td>1</td>
</tr>
<tr>
<td>Statement of the Problem</td>
<td>2</td>
</tr>
<tr>
<td>Purpose of the Study</td>
<td>2</td>
</tr>
<tr>
<td>Research Questions</td>
<td>3</td>
</tr>
<tr>
<td>Rationale for the Study</td>
<td>3</td>
</tr>
<tr>
<td>Definition of Terms</td>
<td>3</td>
</tr>
<tr>
<td>Limitations of the Study</td>
<td>4</td>
</tr>
<tr>
<td>Organization of the Study</td>
<td>4</td>
</tr>
<tr>
<td><strong>II. REVIEW OF THE LITERATURE</strong></td>
<td>5</td>
</tr>
<tr>
<td><strong>III. METHODOLOGY</strong></td>
<td>16</td>
</tr>
<tr>
<td>Introduction</td>
<td>16</td>
</tr>
<tr>
<td>Population</td>
<td>17</td>
</tr>
<tr>
<td>Questionnaire Design</td>
<td>17</td>
</tr>
<tr>
<td>Administration of the Instrument</td>
<td>18</td>
</tr>
<tr>
<td>Methodological assumptions</td>
<td>19</td>
</tr>
<tr>
<td>Limitations of Study</td>
<td>19</td>
</tr>
<tr>
<td><strong>IV. PRESENTATION OF FINDINGS</strong></td>
<td>20</td>
</tr>
<tr>
<td><strong>V. SUMMARY AND CONCLUSIONS</strong></td>
<td>24</td>
</tr>
<tr>
<td><strong>APPENDICES</strong></td>
<td>27</td>
</tr>
<tr>
<td>Appendix A. Client Consent Form</td>
<td></td>
</tr>
<tr>
<td>Appendix B. Questionnaire</td>
<td></td>
</tr>
<tr>
<td>Appendix C. Tables</td>
<td></td>
</tr>
<tr>
<td><strong>BIBLIOGRAPHY</strong></td>
<td>53</td>
</tr>
<tr>
<td>Table</td>
<td>Title</td>
</tr>
<tr>
<td>------</td>
<td>-------</td>
</tr>
<tr>
<td>1.</td>
<td>Ethnic Diversity</td>
</tr>
<tr>
<td>2.</td>
<td>Age Demographic</td>
</tr>
<tr>
<td>3.</td>
<td>Education Level</td>
</tr>
<tr>
<td>4.</td>
<td>Employment</td>
</tr>
<tr>
<td>5.</td>
<td>Client Housing Status</td>
</tr>
<tr>
<td>6.</td>
<td>Federal Aid</td>
</tr>
<tr>
<td>7.</td>
<td>Past Health History</td>
</tr>
<tr>
<td>8.</td>
<td>First Pregnancy</td>
</tr>
<tr>
<td>9.</td>
<td>Planned Pregnancy</td>
</tr>
<tr>
<td>10.</td>
<td>Onset of Prenatal Care</td>
</tr>
<tr>
<td>11.</td>
<td>Gestation Stages</td>
</tr>
<tr>
<td>12.</td>
<td>Weight Problem</td>
</tr>
<tr>
<td>13.</td>
<td>Mineral and/or Vitamin supplementation</td>
</tr>
<tr>
<td>14.</td>
<td>Regular Exercise</td>
</tr>
<tr>
<td>15.</td>
<td>Sleep Habits</td>
</tr>
<tr>
<td>16.</td>
<td>Eating Habits</td>
</tr>
<tr>
<td>17.</td>
<td>Alcohol, Smoking, and Illegal Drug Use</td>
</tr>
<tr>
<td>18.</td>
<td>Alcohol, Smoking, and Illegal Drug Use</td>
</tr>
</tbody>
</table>
CHAPTER I
INTRODUCTION

Background of Study

Studies show that numerous and complex variables influence pregnancy outcomes and infant mortality rates. These variables include demographic, medical, physical, environmental, behavioral, and attitudinal factors and prenatal care. Improving the health of mothers and infants is a national challenge. In 1987, more than 3.8 million infants were born in the United States. Of these, 38,408 died before their first birthday. Although the infant mortality rate is at an all-time low, the pace of progress has slowed.

According to Dr. Robert Deppen of the Oklahoma State Health Department, "In 1992, Oklahoma ranked 29th in the United States for infant mortality and 21st for low birth weight. For that year there were 404 infant deaths (White - 297, Black - 79, Indian - 24, Other - 3, and no race given - 1)."

Very low birth weight is considered under 1500g. The total number of births for 1993 was 46,165. Births for the Caucasian race numbered 36,010. Of those, 334 infants exhibited very low birth weight, and 1,861 had low birth weight. The total number of African American births was
4,923. Of those, 148 had very low birth weight and 457 low birth weight. Indian births totaled 4,412; of those, 30 had very low birth weight, and 191 low birth weight. The number of Indian infant deaths recorded is falsely low because Indians are considered white. Infants of other races totaled 737; of those 7 had very low birth weight, 35 low birth weight. A total of eighty-three infants were born for which the race was not recorded, and of those, none had very low birth weight, and 2 had low birth weight. The total number of births to teens (under 20 years old) was 7,800. Of that number, 111 had very low birth weight and 542 low birth weight.

Statement of the Problem

Even though the number of low birth weight infants is at an all time low, there continues to be a problem. The literature reveals that certain risk factors correlate with low birth weight. These risk factors all relate to the lifestyle of the mother-to-be.

Purpose of the Study

The purpose of this study is to determine how many women participating in this study from a given area in which disadvantaged individuals who have low income live are at risk for giving birth to a low birth weight infant.
Research Questions

This study answers questions pertaining to the lifestyle of the mother-to-be and the effects it may have on her unborn child. The questionnaire issued raises questions that are grouped into seven sections which identify factors that may influence pregnancy outcomes. The questionnaire solicits general information about the client, past health history, pregnancy history, weight and weight gain, current health status, eating habits, alcohol use, smoking habit, and illegal drug use. The questionnaire attempts to assess five of the seven variables listed previously that are major predictors of infant mortality and low birth weight for fifty-one women who responded to the questionnaire.

Rationale for the Study

The career goal of the author of this study is to become a physician, possibly in the area of pediatrics. Many of the health problems children experience are directly related to the health of the mother during pregnancy. This topic was selected for the purpose of gaining a better understanding of factors that influence pregnancy outcomes.

Definition of Terms

A low birth weight infant is an infant with a weight at birth between 1500-2500 grams or under 5.5 pounds. A very low birth weight infant weights less than 1500 grams at birth. The death of an infant is referred to as infant mortality.
Limitations of the Study

This study is limited to one center which treats persons of low income and disadvantaged backgrounds in the state of Oklahoma. Because the center does not treat the entire state of Oklahoma, only the area served by the center will be evaluated. Access to client records for this study could not be arranged; therefore, the accuracy of information provided on the questionnaire is dependent on the knowledge and honesty of the persons participating in the study.

Organization of the Study

Chapter I includes the introduction to the study, statement of the problem, statement of the purpose, research questions, rationale for the study, definition of terms, and limitations of the study. Important information on the risk factors of infant mortality and low birth weight are included in the Review of the Literature, Chapter II. The methodology is presented in Chapter III. Chapter IV presents and analyzes the findings of the study. Chapter V summarizes the study.
CHAPTER II
REVIEW OF THE LITERATURE

Many factors affect the outcome of a pregnancy. These include race, age, level of education, income, health history, pregnancy history, weight gain, current health status, prenatal care, smoking habits, eating habits, work habits, and use of illicit drugs, just to name a few. JAMA, The Journal of the American Medical Association (1994) reports that unmarried women and women with no prenatal care are likely to have behavioral risk factors, psychosocial risk factors, and environmental risk factors for low birth weight and pre-term delivery.

Kempe (1992) and Turner (1992) have found that poor maternal health among blacks and whites at the same poverty level is a cause for their having low birth weight infants. Statistics show there is a high incidence of blacks having low birth weight infants. Healthy People 2000: National Health Promotion and Disease Prevention Objective also relates low income to low birth weight because there is a lack of early and sufficient care for the mothers-to-be, and women of reproduction age have no insurance to cover maternity care (1990). Lieberman (1994) adds to this by stating, "Poverty may affect a mother's health by causing high levels of stress, poor nutrition, exposure to
infections, or environmental hazards." The Journal of the American Medical Association (1994) also reports that black families are more likely than other races to live below the poverty level and are less likely to have access to high quality health care.

Supportive relationships may enhance feelings of well-being and personal control, thereby helping women to perceive pregnancy-related changes as less stressful (Norbeck and Anderson, 1989; Tietjen and Bradly, 1985). Pagel, et al. (1990) agree that the reduction of stress is important and will result in fewer stress-related health behaviors such as smoking and alcohol use. In addition, help with daily tasks such as household chores and child care can provide needed assistance with physically strenuous demands that may be harmful to expectant mothers, especially those late in pregnancy (Mamelle, Rauman and Lazar, 1984; McDonald, et al., 1988). "The effects of social support on maternal and infant health may be more pronounced among women who experience high levels of environmental stress" claim Cohen and Wills (1985). Numerous sources note that adolescents, unmarried women, and women with few economic resources may be especially likely to benefit from support.

Pregnancy is not uniformly stressful for all women, and there is growing evidence that women with high prenatal stress are at greater risk for poor outcomes. Edwards (1994) reports that low-income women who exhibit
nutritional, clinical, dietary, lifestyle, environmental, and socioeconomic risk factors and who live within a caring and sensitive environment show a reduction in stress. Women with a positive self-attitude and high self-esteem are more likely to carry the pregnancy to term. The study also indicates that the number of persons who give the mother social support has considerable influence on the infant’s gestational vitality. Adding to stress of a pregnancy is whether or not the pregnancy is desired. "Women who reported during the first trimester of prenatal care that the pregnancy was unwanted were more than two times more likely to deliver infants who died within the first twenty-eight days of life than were women reporting accepted pregnancies. A positive attitude toward pregnancy was not associated with fetal death or post-neonatal death" according to Bustan and Cohen (1994).

Awareness of illness or conditions such as diabetes is beneficial in planning pregnancy. Pregnant women who suffer from diabetes mellitus or gestational diabetes are at greater risk for complication during pregnancy. As Morbidity and Mortality Weekly Report (1994) notes, "Pregnancies complicated by either established diabetes mellitus or gestational diabetes mellitus can be controlled through diet, monitoring of blood sugar levels and prenatal care." JAMA, The Journal of the American Medical Association (1993), points out that "Complications may
affect the mother-to-be or the unborn child’s health." It also states that "Some women suffer from diabetes before pregnancy, while others possibly develop the disease during pregnancy". Garner (1995) adds,

Insulin-dependent diabetes mellitus (IDDM) may cause complications in pregnant women and their fetuses in approximately 0.5% of pregnancies. Fetal or newborn death occurs in about 2% to 4% of IDDM pregnancies, and may be related to abnormal levels of chemicals in blood, especially oxygen.

Several sources concur that dependence on insulin also triggers hypertension, which often leads to diabetic nephropathy, a kidney disease. Morbidity and Mortality Weekly Report (1993) states, "Pre-pregnancy counseling, prenatal care and medical screening can help reduce this risk." Healthy People 2000: National Health Promotion and Disease Prevention Objectives (1990) reports, "Strict glucose control before conception and throughout gestation, coupled with close management, can be effective in reducing adverse outcomes among offspring of women with diabetes". JAMA, The Journal of the American Medical Association (1993), states that women from certain ethnic groups or minorities are less likely to receive adequate prenatal care and may have a higher risk of developing diabetes than other women.
American Family Physician (1995) and WIN News (1993) confirm that anemia is the most common hematologic complication of pregnancy and is associated with increased rates of premature birth, low birth weight and perinatal mortality. The disease results from inadequate supply of one or more nutrients, iron, folic acid, vitamins, trace elements and protein which are vital to the maintenance of normal bodily functions. It is recommended that daily supplementation with 30 to 60 mg of elemental iron and 4 mg of folic acid be started at least one month before conception and continued through the first trimester.

Prenatal care is important to the outcome of a pregnancy. Frank, et al. (1992), state, "Early first trimester initiation of prenatal care leads to a reduction in low birth weight for both blacks and whites." Miller, Strachan, and Wadhera (1993) suggest that preventive measures that can be taken to reduce the incidence of low birth weight infants are prenatal programs, the monitoring of high-risk mothers (those younger than twenty or older than thirty-four, or those in their first pregnancy), or specialized hospital and medical care. Kogan (1994) has found that women who receive sufficient prenatal care and health behavior advice are at a lower risk of delivering a low birth weight infant. Klitch (1994) comments, "African-American women and women who did not receive any prenatal care used more alcohol and drugs during pregnancy than that
used by white women." According to Racine, Joyce and Anderson (1993), "The receipt of prenatal care among cocaine users is associated with significant improvement in birth weight". Mustard and Roos (1994) dispute the positive aspects of prenatal care by reporting on the results of a study that was done. They state, "The difference in birth weight between adequate and less than adequate care groups was small, and the benefit associated with prenatal care was no greater among women with pregnancy complications."

The Journal of the American Medical Association (1992) reports, "Women with less than a high school education are those most likely to smoke." According to Andrews and DeAngelis (1995), "Twenty-seven percent of women of childbearing age smoke." Li, et al. (1993) state that smoking has an effect on the gestational age of an infant. The results of a study done with women who had quit smoking, women who had reduced smoking habits, and women who had not changed their smoking habits shows the average gestational age at delivery to be 39.3 weeks for women who quit smoking compared with 38.3 weeks for women who continued smoking. It also showed that lowest birth weight infants were born to women who had no change in their smoking habits. Lieberman, et al. (1994) claim that women who stopped smoking by the third trimester were not at increased risk of delivering a low birth weight infant compared to nonsmokers. Women who began smoking during the second or third trimester had a
higher risk of delivering a low birth weight infant. They also point out that it is during the third trimester that smoking retards fetal growth, presenting ample opportunity for smoking cessation.

Among white women, the most likely to quit smoking successfully were those who were older, better educated and multiparous. Among black women the only prediction of cessation was intention to breast feed, according to American Family Physician (1992). American Family Physician (1995) suggests that the incidence of low birth weight increases with the number of cigarettes smoked during the third trimester, while Family Planning Perspective (1992) contends that the risk does not increase by the number of cigarettes smoked per day. Seachrist (1995) confirms,

Researchers have discovered that women who smoke during pregnancy are likely to have less Vitamin C than required, and their fetuses are likely to have lower Vitamin C counts as well. It is recommended that smokers double their intake of the vitamin during pregnancy.

Cigarette smoke may be more harmful to developing fetuses than cocaine exposure. Both decrease blood flow, oxygen and nutrition to the fetus, but tobacco may have an additional effect on nerve cell development. Tobacco may have a greater impact on fetal development, but it does not cause
the neurological and behavior changes associated with cocaine use (Cotton, 1994).

Healthy People 2000: National Health Promotion and Disease Prevention Objectives (1990) reports that heavy alcohol consumption during pregnancy is known to cause alcohol-related defects among infants and fetal alcohol syndrome (FAS), which is characterized by growth retardation, facial malformations, and central nervous system dysfunctions including mental retardation. As with smoking, Day points out, "The amount and timing of drinking behavior appears to affect the intensity of the damage to the fetus." Timing and amount of alcohol consumed are not the only factors related to damage of the fetus. There are ethnic differences in maternal ability to metabolize alcohol (Beattie, 1992). It is also indicated that illicit drug use during pregnancy impairs fetal growth.

According to Brown, et al., "Prenatal weight gain is a major factor associated with infant birth weight and health, and its optimization may reduce the incidence of low birth weight in women at risk." The Journal of the American Medical Association (1992) reports that, "17% of white women and 27% of black women do not gain the recommended weight during pregnancy". The recommended range for weight gain during pregnancy is dependent on the pre-pregnancy weight of the mother-to-be. The University of California, Berkeley Wellness Letter (1994) states, "The normal range of weight
gain is 25-35 pounds, overweight women should gain 15-25 pounds, and underweight women should gain 28-40 pounds." Stevenson-Smith (1992) says, "In order to gain the recommended weight approximately 300 calories should be added to the diet per day." She cautions that too much weight gained may cause complications such as gestational diabetes. Stewart (1993) adds information on the importance of weight gain by reporting that high-risk black women who gain the appropriate amount of weight reduce their chances of having low birth weight infants. He also notes, "High-risk, fat black women who do not add more than 6 kg during pregnancy are more in risk of producing a growth-retarded baby than white women". Healthy People 2000: National Health Promotion and Disease Prevention Objectives (1990) reports, Caloric intake is associated with pregnancy weight gain and pregnancy outcome. Although a pregnant woman can gain adequate weight regardless of the nutritional quality of her diet, the goal is to promote weight gain through sound dietary practices and a nutritionally adequate diet. A number of women do not gain the appropriate amount of weight during pregnancy. An infant's birth weight is a major determinant of its potential for survival and future
development. A strong relationship between pregnancy weight gain and birth weight has been demonstrated consistently, and low maternal weight is considered a risk factor.

Carruth and Skinner (1992) believe that providing nutritional counselling to pregnant adolescents is essential since twenty percent of all infants are born to adolescents. In a study done on the beliefs about dietary requirements during pregnancy it was found that there are misconceptions regarding information related to salt intake, vitamin supplementation and the maternal-fetal nutrition relationship. Numerous articles suggest that vitamin supplementation is essential. It has been found the supplementation of fish-oil has a significant effect on the gestation period. Olsen, et al. (1992) claim, "Fish-oil supplementation in the third trimester seems to prolong pregnancy without detrimental effects on the growth of the fetus or on the course of labor." The Lancet (1992) and Science News (1992) agree that the reason for this effect is thought to be the omega-3 fatty acids in fish affecting hormones that are involved in pregnancy duration. Even though nutritional supplementation can be beneficial, Nostitz (1995) cautions, pregnant women should avoid diets and food supplements unless they have the approval of a doctor.

Low birthweight occurs in infants who are born
prematurely or in full-term infants who weigh less than expected for their age. It has long been thought that the health and behavior of the pregnant woman has an effect on the development of the fetus. Exposure to smoking, alcohol, poor nutrition, poor health, and negative social variables are likely to have an effect on the mother before conception as well as the mother and fetus during and after the pregnancy. Although low birthweight affects numerous infants born every year, with prenatal care, proper nutrition and weight gain adverse effects on the infant can be prevented.
CHAPTER III

METHODOLOGY

Introduction

The purpose of the research in this study is to determine whether health and behavior of fifty-one women participating in this study could influence pregnancy outcomes. The results of this study provide answers to selected questions pertaining to the lifestyle of the mother-to-be and the effects it may have on her unborn child. The study was performed through the analysis of a questionnaire administered to a population of patients/clients being seen at a Center which treats persons of low income and disadvantaged backgrounds.

Frequency analysis was conducted to determine the relative proportions of respondents in various classifications pertaining to the characteristics measured. Frequency histograms were prepared to show patterns of variation in the population with respect to the characteristics. Chi Square analysis was conducted to further examine the nature of association between selected pairs of characteristics of interest. These pairs include planned vs. unplanned on the basis of race and age, onset of prenatal care on the basis of race, working vs. non-working on the basis of age and race, smokers vs. non-smokers on the
basis of age and race, first pregnancy vs. previous pregnancy on the basis of race, education level completed on the basis of race, those who receive federal aid vs. those who do not receive federal aid on the basis of race, alcohol drinkers vs. non-drinkers on the basis of race, Illegal drug users vs. Non-users on the basis of race, mineral supplementation vs. race and age, and weight problems vs. race and age.

POPULATION

The number of participants in the study population is fifty-one pregnant women at various gestational stages.

QUESTIONNAIRE DESIGN

The questionnaire was designed to address questions pertaining to the lifestyle of the mother-to-be. The questions on the form are grouped into seven sections which identify factors that may influence pregnancy outcomes. These sections are as follows:

I. General information
II. Past health history
III. Pregnancy History
IV. Weight and weight gain
V. Current health status
VI. Eating habits
VII. Alcohol, smoking and illegal drug use
Section I elicits general information about the client and provide an understanding of the client's situation. Section II is concerned with past health problems of the client that may have an adverse effect on the pregnancy. Section III deals with the client's pregnancy history. In Section IV, potential problems for the pregnancy can be identified from the weight gained or lack of weight gained during pregnancy.

Section V determines if the client is taking certain kinds of pharmaceutical preparations that are specifically related to nutritional status. Also included in this section are questions about exercise and sleep habits. Section VI describes the client's eating habits. Section VII, alcohol, smoking and illegal drug use, provides information on factors that influence the quality of nutrients obtained by the developing fetus.

**ADMINISTRATION OF THE INSTRUMENT**

The clients who agreed to participate in the study signed a Client Consent Form which includes a guarantee that their identification will be kept confidential. Each participant had the right not to answer any question that made her feel uncomfortable and she could withdraw from the study at any time without her decision having any impact on the delivery of her current health care services at the
After the client signed the Client Consent Form, she filled out the questionnaire. Once the questionnaires were completed, the responses were categorized according to the seven sections.

**METHODOLOGICAL ASSUMPTIONS**

Assuming all questions were answered truthfully and to the best of the clients' knowledge, the data reveals the number of clients participating in the study at risk for a low birth weight infant.

**LIMITATIONS OF STUDY**

This study was limited to one center which treats persons of low-income and disadvantaged backgrounds in the state of Oklahoma. Because the center does not treat the entire state of Oklahoma, only the area served by the center was evaluated. For this study, access to client records could not be arranged; therefore, the accuracy of information provided on the questionnaire is dependent on answers of persons participating in the study.
CHAPTER IV
PRESENTATION OF FINDINGS

This study seeks to determine whether the health and behavior of fifty-one women participating in this study could influence pregnancy outcomes. The literature reveals a number of factors that have the potential to influence the outcome of a pregnancy. This chapter presents the findings of a survey completed by fifty-one pregnant women conducted in the spring of 1996.

The survey reveals that the lifestyle and/or health of the women surveyed is at risk in that they may have a low birth weight infant. Of the fifty-one women surveyed there were twenty-eight Caucasians and twenty-three minorities. The ages of those surveyed ranged from under 17 to 37. There was one under 17, four were 22 to 25, eight were 26 to 29, three were 30 to 33 and two were 34 to 37. One participant did not report her age. Of the grade levels completed eighteen had not completed high school. Twenty-six had completed high school, and six had completed a two-year college. One did not report an answer. Twenty-one women work, while thirty do not. Two women reported they live alone, and forty-eight reported living with a boyfriend/husband, children, relatives and/or boyfriend’s/husband’s parents. One did not report an
answer. Of those surveyed, nine do not receive any federal aid, while forty-two receive food stamps, WIC, welfare and/or another source of aid.

There were twenty-five who reported not having any past health problem, eight reported having allergies/asthma, eight reported anemia, two reported anorexia/bulimia, nine reported depression, six reported high blood pressure, five reported having a sexually transmitted disease, and one stated other health problems.

Twenty-two reported this as their first pregnancy, while twenty-nine reported it was not. Forty-one of the women surveyed reported the pregnancy was not planned, and ten reported that it was. The weeks reported during which prenatal care was sought were as follows: eleven reported 0 to 6 weeks, twenty-one reported 7 to 12 weeks, eight reported 13 to 18 weeks, ten reported 19 to 26 weeks, and one reported 27 to 32 weeks. The gestational stages reported were that one reported 0 to 6 weeks, five reported 7 to 12 weeks, seven reported 13 to 18 weeks, sixteen reported 19 to 26 weeks, ten reported 27 to 32 weeks, six reported 33 to 38 weeks, and six gave no answer. Of those surveyed thirty-three reported not having any weight problems and seventeen reported having a weight problem (five were underweight, ten were overweight, one reported both over and underweight, one reported other and one reported no answer). Forty-four take vitamins or mineral
supplements while seven do not. Twenty-four exercise more than three times a week, while twenty-seven do not. Three reported getting less than 4 hours of sleep a night, sixteen reported 5 to 7 hours, eleven reported 7 to 8 hours, and twenty-one reported 8 or more hours.

Of those surveyed thirty-nine reported having breakfast every day or nearly every day, twelve reported sometimes or at least once a week. Forty-five reported having lunch every day or nearly every day, six reported sometimes or at least once a week. Forty-five reported having an evening meal every day or nearly every day, four reported sometimes or at least once a week, two reported never or hardly ever. Seventeen smoke cigarettes, while thirty-four do not. Four drink alcoholic beverages, while forty-seven do not. Three consume illegal drugs, while forty-eight do not.

As the results of the questionnaire reveal, there continue to be problems with the way a number of mothers-to-be conduct their lifestyles, thus impacting the health of the unborn child. The literature suggests that the health and probability of survival of the infant is dependent on the health and lifestyle of the mother, and it is. This study indicates that the risk factors of infant mortality and low birth weight are present among a significant number of the pregnant women in Oklahoma included in this study.

This chapter presents the results of the questionnaire and provides data on the selected five major predictors of
infant mortality and low birth weight.
CHAPTER V
SUMMARY AND CONCLUSIONS

Chapter One includes the introduction to the study, statement of the problem, statement of the purpose, research questions, rationale for the study, definition of terms, and limitation of the study. Important information on the risk factors of infant mortality and low birth weight are presented in Chapter Two. Chapter Three provides a description of the research methodology. Chapter Four presents the results obtained from a questionnaire on pregnancy and health history administered to fifty-one Oklahoma mothers-to-be who receive services from a family medical center.

What are the stress related factors these women are exposed to? Mainly the pregnancy’s not being planned. Almost half of the participants work. Some participants smoke, drink alcohol, or consume illegal drugs. A few participants do not have a support system.

What are the prominent illnesses or conditions that could predict the pregnancy outcome? Anemia and depression were the most reported conditions. High blood pressure and sexually transmitted diseases were second, while anorexia and bulimia were reported least amongst the illnesses or conditions.
How many are at risk for unfavorable outcomes by not receiving prenatal care in the first trimester? A total of nineteen of the fifty-one women did not receive prenatal care in the first trimester.

Are there any women smoking, drinking alcohol, and/or consuming illegal drugs? Of the three choices, most of the women surveyed smoke, but there were some who drank alcohol and consumed illegal drugs.

Were there any reports of problems with weight? There were reported problems with weight. Most of those reporting a problem reported being overweight, and one reported fluctuating between overweight and underweight.

In spite of the trends, Chi Square analysis failed to reveal a significant association between any pairs of characteristics investigated. This is largely attributable to the skewed data in which certain categories were either zero or too few to fully satisfy the requirements of the test. Therefore, the data was examined superficially to see what characteristics appear to be associated with infant mortality and low birth weight. Further analysis using Principal Component analysis was unable to be performed due to certain limitations and is required to determine traits that are important.

To improve this study a few adjustments should be made:

(1) Use a larger sample consisting of 100 Caucasians and 100 minorities. This way the two classes will
have a fair chance of representation.

(2) Look for race differences before data comes in.

(3) Consult more than one clinic to collect data.
APPENDIX A

Client Consent Form
CLIENT CONSENT FORM

I agree to take part in the Infant Mortality and Low Birthweight Infants Study at conducted Estacia D. Thrower, a biology/pre-medicine student at Langston University.

I understand that I will be given a questionnaire consisting of seven sections pertaining to my lifestyle and the effects it may have on my unborn child.

I also understand that my responses and my identification will be kept confidential. Data will be reported only as a part of the group. I further understand that I do not have to answer any question that makes me feel uncomfortable and that I can withdraw from this study at any time without any impact on my health care services at the Center.

If I should have any concerns I know that I can consult with Mrs. Eddie Carr, Division Director Perinatal and Children’s Services.

____________________________________  ________________________________________
Witness/Date                        Signature of Client/Date
APPENDIX B

Questionnaire
PREGNANCY QUESTIONNAIRE

YOU ARE ABOUT TO COMPLETE THE PREGNANCY QUESTIONNAIRE. YOUR RESPONSES AND IDENTIFICATION WILL BE KEPT CONFIDENTIAL. YOU DO NOT HAVE TO ANSWER ANY QUESTION THAT MAKES YOU FEEL UNCOMFORTABLE AND YOU CAN WITHDRAW FROM THIS STUDY AT ANY TIME WITHOUT HAVING ANY NEGATIVE IMPACT ON YOUR HEALTH CARE SERVICES AT THE CENTER.

I. GENERAL INFORMATION

a) WHAT IS YOUR RACE? CAUCASIAN____ AFRICAN-AMERICAN____
   ASIAN____ NATIVE AMERICAN____
   MEXICAN-AMERICAN____ OTHER____

b) HOW OLD ARE YOU? LESS THAN 17____ 26-29____ 38-40____
   17-21____ 30-33____ ABOVE 40____
   22-25____ 34-37____

c) WHAT IS THE HIGHEST GRADE LEVEL YOU COMPLETED?
   LESS THAN 12 YEARS____
   HIGH SCHOOL GRADUATE____
   2-YEAR COLLEGE GRADUATE____
   4-YEAR COLLEGE GRADUATE____
   GRADUATE OR PROFESSIONAL SCHOOL GRADUATE____

d) DO YOU WORK? YES____ NO____
   FULL-TIME____
   PART-TIME____
   SELF-EMPLOYED____

e) WHOM DO YOU LIVE WITH? (CHECK ALL THAT APPLY.)
   BOYFRIEND/HUSBAND____
   CHILDREN____
   RELATIVES____
   BOYFRIEND’S OR HUSBAND’S PARENTS____
   OTHER (PLEASE WRITE IN)____________________

f) DO YOU RECEIVE ANY OF THE FOLLOWING? (CHECK ALL THAT APPLY TO YOU.)
   FOOD STAMPS____
   WIC FOOD PROGRAM____
   WELFARE____
   OTHER____
II. PAST HEALTH HISTORY

HAVE YOU EVER HAD ANY OF THE FOLLOWING? (CHECK ALL THAT APPLY.)
ALLERGY/ASTHMA HIGH BLOOD PRESSURE
ANEMIA INTESTINAL PROBLEMS
ANOREXIA/BULIMIA KIDNEY DISEASE
CANCER LIVER DISEASE
DIABETES TUBERCULOSIS
HEART DISEASE OTHER
SEXUALLY TRANSMITTED DISEASE (STD)
DEPRESSION

III. PREGNANCY HISTORY

a) IS THIS YOUR FIRST PREGNANCY? YES NO
   IF NOT, HOW MANY CHILDREN DO YOU HAVE?

b) WAS THIS PREGNANCY PLANNED? YES NO

c) DURING WHAT WEEK OF YOUR PREGNANCY DID YOU SEEK
   PRENATAL OR MEDICAL CARE?
   0-6 WEEKS 33-38 WEEKS
   7-12 WEEKS
   13-18 WEEKS
   19-26 WEEKS
   27-32 WEEKS

d) HOW FAR ALONG IN THE PREGNANCY ARE YOU NOW?
   0-6 WEEKS 19-26 WEEKS
   7-12 WEEKS 27-32 WEEKS
   13-18 WEEKS 33-38 WEEKS

IV. WEIGHT AND WEIGHT GAIN

a) BEFORE THIS PREGNANCY, WHAT WAS YOUR USUAL WEIGHT?
   __________ lbs. OR DON’T KNOW

b) DURING YOUR LAST PREGNANCY, HOW MUCH WEIGHT DID YOU
   GAIN?
   __________ lbs. OR DON’T KNOW

c) HOW MUCH WEIGHT DO YOU EXPECT TO GAIN DURING THIS
   PREGNANCY?
   __________ lbs. OR DON’T KNOW

d) HAVE YOU EVER HAD ANY PROBLEMS WITH YOUR WEIGHT?
   YES NO
   IF YES, WHAT?
   UNDERWEIGHT
   OVERWEIGHT
   OTHER
V. CURRENT HEALTH STATUS

a) DO YOU TAKE A VITAMIN OR MINERAL SUPPLEMENT?
   YES_____ NO_____

b) DO YOU EXERCISE MORE THAN 3 TIMES A WEEK?
   YES_____ NO_____

c) HOW MANY HOURS OF SLEEP DO YOU GET A NIGHT?
   LESS THAN 4 HOURS_____
   5-6 HOURS_____
   7-8 HOURS_____
   8 OR MORE_____

VI. EATING HABITS

a) HOW OFTEN DO YOU EAT THE FOLLOWING FOODS? (PUT AN "X" ON THE LINE.)

<table>
<thead>
<tr>
<th></th>
<th>EVERY DAY OR NEARLY EVERY DAY</th>
<th>SOMETIMES (NOT DAILY BUT AT LEAST ONCE A WEEK)</th>
<th>NEVER OR HARDLY EVER (LESS THAN ONCE A WEEK)</th>
</tr>
</thead>
<tbody>
<tr>
<td>MILK</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CHEESE, YOGURT</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ICE CREAM</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PEANUT BUTTER OR NUTS</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MEAT, FISH, CHICKEN</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EGGS</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BREAD, RICE, CEREAL, POTATOES</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FRUIT OR FRUIT JUICES</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>VEGETABLES</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SWEETS (CAKES, DONUTS, PIES, COOKIES, CANDY)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>POTATO CHIPS, CORN CHIPS,</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
PRETZELS, ETC.  _______  _______  _______
SODA POP, KOOL-AID  _______  _______  _______
ALCOHOL (BEER, WINE, ETC.)  _______  _______  _______
COFFEE, TEA  _______  _______  _______
EAT AT FAST FOOD RESTAURANTS  _______  _______  _______

b) HOW OFTEN DO YOU USUALLY EAT MEALS OR SNACKS? (PUT AN "X" ON THE LINE.)

<table>
<thead>
<tr>
<th></th>
<th>EVERY DAY</th>
<th>SOMETIMES</th>
<th>NEVER OR HARDLY EVER</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>OR NEARLY</td>
<td>(NOT DAILY</td>
<td>(LESS THAN</td>
</tr>
<tr>
<td></td>
<td>EVERYDAY</td>
<td>BUT AT LEAST</td>
<td>ONCE A WEEK)</td>
</tr>
<tr>
<td>BREAKFAST</td>
<td>_______</td>
<td>_______</td>
<td>_______</td>
</tr>
<tr>
<td>LUNCH</td>
<td>_______</td>
<td>_______</td>
<td>_______</td>
</tr>
<tr>
<td>EVENING MEAL</td>
<td>_______</td>
<td>_______</td>
<td>_______</td>
</tr>
<tr>
<td>MORNING SNACK</td>
<td>_______</td>
<td>_______</td>
<td>_______</td>
</tr>
<tr>
<td>AFTERNOON SNACK</td>
<td>_______</td>
<td>_______</td>
<td>_______</td>
</tr>
<tr>
<td>EVENING SNACK</td>
<td>_______</td>
<td>_______</td>
<td>_______</td>
</tr>
</tbody>
</table>

VII. ALCOHOL, SMOKING, AND ILLEGAL DRUG USE

a) DO YOU SMOKE CIGARETTES?
   YES____ NO_____

b) DO YOU DRINK ANY ALCOHOLIC BEVERAGES (LIQUOR, WINE, BEER)?
   YES____ NO_____

c) DO YOU CONSUME ANY ILLEGAL DRUGS (MARIJUANA, COCAINE, IV DRUGS)?
   YES____ NO_____

THANK YOU FOR YOUR PARTICIPATION.
APPENDIX C

Tables
TABLE ONE
ETHNIC DIVERSITY

<table>
<thead>
<tr>
<th>Ethnicity</th>
<th>Number of Participants</th>
</tr>
</thead>
<tbody>
<tr>
<td>Caucasian</td>
<td>30</td>
</tr>
<tr>
<td>Minority</td>
<td>20</td>
</tr>
</tbody>
</table>

- \( \text{Number of Participants} \)
TABLE ONE
ETHNIC DIVERSITY

<table>
<thead>
<tr>
<th>Ethnicity</th>
<th>Number of Participants</th>
</tr>
</thead>
<tbody>
<tr>
<td>Caucasian</td>
<td>30</td>
</tr>
<tr>
<td>Minority</td>
<td>10</td>
</tr>
</tbody>
</table>

![Bar chart showing the number of participants in Caucasian and Minority groups.](chart.png)
<table>
<thead>
<tr>
<th>Age Category</th>
<th>Number of Participants</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 17</td>
<td></td>
</tr>
<tr>
<td>17-21</td>
<td>30</td>
</tr>
<tr>
<td>22-25</td>
<td>5</td>
</tr>
<tr>
<td>26-29</td>
<td>10</td>
</tr>
<tr>
<td>30-33</td>
<td>5</td>
</tr>
<tr>
<td>34-37</td>
<td>3</td>
</tr>
<tr>
<td>38-40</td>
<td>1</td>
</tr>
<tr>
<td>&gt; 40</td>
<td></td>
</tr>
<tr>
<td>No Ans.</td>
<td></td>
</tr>
</tbody>
</table>
TABLE FIVE
CLIENT HOUSING STATUS

- BOYFRIEND/HUSBAND
- CHILDREN
- RELATIVES
- BOYFRIEND/HUSBAND'S PARENTS
- ALONE
- NO ANSWER

NUMBER OF PARTICIPANTS
<table>
<thead>
<tr>
<th>Condition</th>
<th>Number of Participants</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anorexia/Bulimia</td>
<td>30</td>
</tr>
<tr>
<td>Anemia</td>
<td>20</td>
</tr>
<tr>
<td>Allergy/Asthma</td>
<td>10</td>
</tr>
<tr>
<td>STD</td>
<td>0</td>
</tr>
<tr>
<td>High Blood Pressure</td>
<td>0</td>
</tr>
<tr>
<td>Depression</td>
<td>0</td>
</tr>
<tr>
<td>OTHER</td>
<td>0</td>
</tr>
<tr>
<td>NONE</td>
<td>0</td>
</tr>
</tbody>
</table>

**TABLE SEVEN**

PAST HEALTH HISTORY
TABLE EIGHT
FIRST PREGNANCY

<table>
<thead>
<tr>
<th></th>
<th>CAUCASIAN</th>
<th>MINORITY</th>
</tr>
</thead>
<tbody>
<tr>
<td>YES</td>
<td></td>
<td></td>
</tr>
<tr>
<td>NO</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
TABLE NINE
PLANNED PREGNANCY

- YES - NO

CAUCASIAN
MINORITY

□ YES □ NO
TABLE TEN
ONSET PREGNATAL CARE

0-6 WEEKS
7-12 WEEKS
13-18 WEEKS
15-26 WEEKS
27-32 WEEKS

■ CAUCASIAN ■ MINORITY
TABLE ELEVEN
GESTATION STAGE

<table>
<thead>
<tr>
<th>GESTATION STAGE</th>
<th>NUMBER OF PARTICIPANTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-6 WEE</td>
<td></td>
</tr>
<tr>
<td>7-12 W</td>
<td></td>
</tr>
<tr>
<td>13-18 W</td>
<td></td>
</tr>
<tr>
<td>19-26 W</td>
<td></td>
</tr>
<tr>
<td>27-32 W</td>
<td></td>
</tr>
<tr>
<td>33-38 W</td>
<td></td>
</tr>
<tr>
<td>NO ANS</td>
<td></td>
</tr>
</tbody>
</table>

NUMBER OF PARTICIPANTS
<table>
<thead>
<tr>
<th>TABLE TWELVE</th>
<th>WEIGHT PROBLEM</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>CAUCASIAN</th>
<th>MINORITY</th>
</tr>
</thead>
<tbody>
<tr>
<td>YES</td>
<td>15</td>
</tr>
<tr>
<td>NO</td>
<td>10</td>
</tr>
</tbody>
</table>
TABLE THIRTEEN
MINERAL AND/OR VITAMIN SUPPLEMENTATION

BYES NO

CAUCASIAN
MINORITY

YES NO
TABLE FOURTEEN

REGULAR EXERCISE

CAUCASIAN MINORITY

• YES • NO

[Bar chart showing the comparison between Caucasian and Minority regular exercise participation, with bars indicating higher participation for Caucasians.]
TABLE FIFTEEN
SLEEP HABITS

< FOUR HRS  |  5-6 HRS  |  7-8 HRS  |  > EIGHT HRS

■ CAUCASIAN  □ MINORITY
TABLE SIXTEEN
EATING HABITS

EVERYDAY □  SOMETIMES □  NEVER □
TABLE EIGHTEEN
ALCOHOL, SMOKING & ILLEGAL DRUG USE

- CAUCASIAN
- MINORITY
ANDREWS, John S. and Catherine D. DeAngelis. "Pediatrics." 
7 June 1995: 1708-10.

BETTIE, J. O. "Alcohol exposure and the fetus." European 

"Can fish oil prolong pregnancy?" Science News. 16 May 

CARRUTH, Betty Ruth, and Skinner J. D. "What do pregnant 
adolescents believe about nutrition during pregnancy?" 

COTTON, Paul. "Smoking cigarettes may do developing fetus 
more harm than ingesting cocaine, some experts say." 

DAY, Nancy L. "The effects of prenatal exposure to 
alcohol." Alcohol Health & Research World. Summer 

EDWARDS, Cecile H. et al. "Maternal stress and pregnancy 
outcomes in a prenatal clinic population. (African 
American Women and Their Pregnancies)." The Journal of 

FRANK, Richard G., et al. "Updated estimates of the impact 
of prenatal care on birthweight outcomes by race."


"More than half of all pregnant women suffer from anemia." *WIN News*. Spring 1993: 36.


"Pregnancy: weight of evidence. (weight gain guidelines)."
   The University of California, Berkely Wellness Letter.

"Prenatal care and pregnancies complicated by diabetes -
U.S. reporting areas, 1989." Morbidity and Mortality

"Prenatal care, pregnancies complicated by diabetes." JAMA,
The Journal of the American Medical Association, 21
April 1993: 1932.

Racine, Andrew, Theodore Joyce and Richard Anderson. "The
association between prenatal care and birth weight
among women exposed to cocaine in New York City."

Rind, P. "Smoking in pregnancy nearly triples women's risk
of placenta previa." Family Planning Perspectives.
Jan-Feb 1992: 47-49.

Seachrist, L. "Smoking depletes vitamin C from mom, fetus."

Stevenson-Smith, Fay. "Weight gain during pregnancy."

Stewart, M. "Fetal growth retardation may be lessened when
high-risk women maximize prenatal weight gain." Family

"Timing of smoking cessation and low birth weight."

VITA

Estacia D. Thrower

Candidate for the Degree of

Bachelor of Science

and

Completion of

E. P. McCabe Honors Program

Thesis: INFANT MORTALITY AND LOW BIRTHWEIGHT IN OKLAHOMA

Major: Biology

Biographical Information:

Personal data: Born in Oklahoma City, Oklahoma, December 13, 1973, the daughter of Eric and Evelyn A. Thrower.

Education: Graduated from John Marshall High School, Oklahoma City, Oklahoma, in May 1992; will complete requirements for Bachelor of Science at Langston University in May 1996, having also completed all requirements in the E. P. McCabe Honors Program.

Honors and Activities: Edwin P. McCabe Honors Program, Regents Scholarship, NASA Scholarship, Beta Kappa Chi National Scientific Honors Society, Scholars Club, Dean's List, Who's Who Among American Colleges and Universities, and Delta Sigma Theta Sorority, Inc.