A Healthy Pregnancy Curriculum For Adolescent Mothers: Participants' Perceptions And Effects On Infants' Birth Weight

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A HEALTHY PREGNANCY CURRICULUM FOR ADOLESCENT MOTHERS:
PARTICIPANTS’ PERCEPTIONS AND EFFECTS ON INFANTS’ BIRTH WEIGHT

by

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A dissertation submitted in partial fulfillment of the requirements
for the degree of Doctor of Education
in the Department of Graduate Studies and Research
in the College of Education
at the University of Central Florida
Orlando, Florida

Spring Term
2005

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ABSTRACT

The purpose of this study was to determine if there are differences in birth weight of infants, tobacco use during pregnancy, and Apgar scores of infants between pregnant adolescents who successfully complete a healthy pregnancy curriculum and those who do not and to further examine the adolescent mothers’ perceptions of the major concepts included in a healthy pregnancy curriculum.

The study involved the collection and analysis of retrospective data to determine differences in birth weight of infants, tobacco use during pregnancy, and Apgar scores of infants. The Health Department Office of Vital Statistics for Charlotte County, the school nurse of the Healthy Outcomes in Pregnancy and Education (H.O.P.E.) teen parent program, and school records from the alternative high school, The Academy, provided these data.

Additionally, a questionnaire, focus group discussions, and follow-up interviews were conducted with former students of the healthy pregnancy curriculum to examine the adolescent mothers’ perceptions of the major concepts in the healthy pregnancy curriculum. The participants answered questions regarding how important they thought each major concept is for inclusion in the healthy pregnancy curriculum, how much they learned about each major concept, and how helpful that information was in their own experiences.

Analyses of the data did not show statistical differences between adolescents who successfully completed a healthy pregnancy curriculum and those who did not complete a healthy pregnancy curriculum regarding differences in birth weight of infants, tobacco
use during pregnancy, and Apgar scores of infants. These findings of non-significance may be due to the small number of participants (n=50), non-participants (n=149), and the limited duration of the study data (1999 to 2003). A larger population over a longer period of time might yield different results.

The findings from the qualitative data provided by the seven former students suggest that pregnant adolescents who successfully complete the class perceive the components of the healthy pregnancy curriculum as valuable and important. Topics that were indicated as particularly important were The Birth Process, Nutrition, Decision Making, and Family Planning. Participants further indicated changes in their attitudes for all ten topics and changes in behaviors in the areas of Human Reproduction, Nutrition, Health-Care Practices, Environmental Effects on the Unborn Baby, and Decision Making.
For the people in my life who have always had faith in me and have helped me find my own strength: Steve Konjoian, my wonderful husband and soul mate who is the source of many marvelous dimensions in my life; my dear friends Amber Luke and Susie Robare, whose love and support are limitless; and my son, Adam, who brings delight to my days.
ACKNOWLEDGMENTS

I wish to thank the numerous individuals who contributed to this project and, despite ever-present obstacles, continued to have faith that I would finish this undertaking. My dissertation committee spent many hours directing the course of this research. I thank Dr. Kay Allen, Dr. Lynn Hartle, and Dr. Lea Witta, Professors of Educational Studies at the University of Central Florida, Dr. Ermalynn Kiehl, Professor of Nursing at the University of Central Florida and Dr. Karyn Gary, Coordinator of The Academy, for their time, advise, expertise, and patience. I also thank Dr. Lois Sadler, researcher and Professor of Nursing at Yale University and Dr. Jess House, coordinator of the Florida Gulf Coast University/University of Central Florida doctoral cohort for their assistance and encouragement.

Additionally, I am truly grateful for the countless friends and family who provided support during some exceptionally difficult times. I thank my mother, Harriett Walters, who always came through when I was in need. Amber Luke was forever there to care for me and has shared this journey from the beginning. Susie Robare and Dr. Karyn Gary helped locate participants and conducted the focus group discussions. Helen Roe, Gale Harnew, and Sarah Dugan assisted with archival data collection and provided transportation. Leslie Isley and the staff of The Academy made sure my family was always well nourished. Mona McMahon and Grandpa Joe provided many hours of childcare while I was attending classes and working on this research. Tania Young, Gloria Hayes and the Luke family helped me survive Charley and its aftermath. Laura Meyer, Mike Jones, and Susan Strickland somehow managed to save four years of my work from a rain-soaked computer.
I am also grateful to the members of the Florida Gulf Coast University/University of Central Florida doctoral cohort for their assistance and inspiration. I thank my husband and son who graciously went without my time and attention so I could pursue this goal.

Lastly, I thank the young women who participated in this study and the remarkable adolescents that allow me to share in their lives every day. I marvel at, and am inspired by, their resourcefulness, tenacity, and determination to fulfill their roles as responsible young adults and parents.
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CHAPTER 1

INTRODUCTION

Background

Children born to adolescent parents are more likely to experience negative outcomes compared to children born to older parents (Alan Guttmacher Institute, 1999; American Academy of Pediatrics, 2001; Chandra, Schiavello, Weinstein, & Hook, 2002; Cowden & Funkhouser, 2001; Fessler, 2003; Maynard, 1996; Phipps, Blume, & DeMonner, 2002; Phipps & Sowers, 2002; Rauh, Andrews & Garfinkel, 2001; Roth, Hendrickson, Schilling, & Stowell, 1998; Southern Institute on Children and Families, 2002; Ventura, Mosher, Curtin, Abma, & Henshaw, 1999; Wertheimer et al., 2001). Low birth weight (less than 2,500 grams or 5.5 lbs.) is one such risk for infants of adolescent mothers (Alan Guttmacher Institute; American Academy of Pediatrics, 1999, 2001; McCarton, 1998; Roth et al.).

Researchers Lowenthal and Lowenthal (1997) determined that low birth weight infants have a higher likelihood of suffering from health complications, birth defects, and are more likely to die during their first month of life compared to infants of normal weights. Additional studies have shown that low birth weight infants are at an increased risk of developmental delays and medical problems (McCarton, 1998), including neurological impairment and gross and fine motor dysfunction (Paneth, 1995).
According to data compiled by The Annie E. Casey Foundation (2002), the percentage of low birth weight infants born in the United States to mothers of all ages during 1999 was 7.6%. The rate during the same period in Florida was higher at 8.2%. However, the percentage of low birth weight infants born in the United States to adolescent mothers (ages 15-19) during 2000 was even higher at 10% (Papillo et al., 2002). Though the rate of low birth weight infants born to adolescents for individual states ranges from a high of 13% in Mississippi and Louisiana to a low of 7% in California, Montana, Oregon, and Washington, Florida’s rate for 2000 was the same as the national average of 10% (Papillo et al., 2002).

Although studies have been completed to help identify factors leading to the increased rate of low birth weight infants born to adolescent mothers, it remains unclear whether biological or social factors account for most of the medical complications resulting from adolescent pregnancy (American Academy of Pediatrics, 1999; Fraser et al., 1995). A combination of factors is likely to contribute to many of the poor outcomes in infants born to adolescents (Fraser et al.).

Since it is probable that at least some of the sources of problems resulting from adolescent births are related to social factors, such as smoking and inadequate prenatal care, efforts should be made to improve the health care and lifestyle of pregnant adolescents (American Academy of Pediatrics, 1999; Fraser et al., 1995). Authors Roth, Hendrickson, Schilling, and Stowell (1998) recommend that schools join with parents and community agencies to promote healthy lifestyle choices and postpone first pregnancies as strategies to help reduce the risk of adolescent mothers having low birth weight infants. Teenage parenting programs help provide pregnant adolescents with the
education and resources to make constructive lifestyle changes, such as abstaining from
using alcohol, tobacco, and drugs and focusing on proper nutrition and physical fitness
and thus, also may contribute to more positive birth outcomes for their infants (Batten &
Stowell, 1996; Bock, 1995; Granger & Cytron, 1999; Gutierrez, 1984; Klima, 2003;
Ruch-Ross & Jones, 1992; Stephens, Wolf, & Batten, 1999; Williams & Sadler, 2001;
Wolf, 1996).

Problem Statement

The purpose of the current study is to determine if there are differences in birth
weight of infants, tobacco use during pregnancy, and Apgar scores of infants between
pregnant adolescents who successfully complete a healthy pregnancy curriculum and
those who do not and to further examine the adolescent mothers’ perceptions of the major
concepts included in the Healthy Pregnancy Curriculum.

Definition of Terms

Adolescent mothers: Adolescent mothers, for this study, are individuals who have given
birth to a live infant before they have reached the age of 18 years.

Early Adolescent: Phipps and Sowers (2002) conducted a study designed specifically to
establish an age group definition for early adolescent childbearing. These researchers
examined medical records for all women 12 to 23 years of age who had a singleton first
birth in the United States during 1995. The study provided analysis of rates for infant
mortality, very low birth weight (<1,500 grams), and very preterm delivery (<32 weeks).
Phipps and Sowers concluded that poor infant health outcomes for younger adolescents begin to stabilize at 16 years. Thus, adolescents younger than 16 years are grouped together to determine early adolescent childbearing based on rates of adverse clinical outcomes. Therefore, the present research study uses the definition of early adolescent as 15 years and younger.

**H.O.P.E.:** The teenage parent program offered in Charlotte County, Florida is identified as Healthy Outcomes in Pregnancy and Education (H.O.P.E.) and is part of Charlotte County Public School District’s only alternative high school, The Academy. According to The Academy’s web site, the school serves approximately 315 students who are considered at-risk of not finishing high school (Charlotte County Public Schools, 2004). Students attending The Academy may have been retained one or more grades, may have experienced problems with non-attendance, may be lacking required credits for graduation, or may be a pregnant adolescent, the male partner of a pregnant adolescent, or a parenting teenager (Gary, 2004). The H.O.P.E. program serves all pregnant and parenting high school students in the county who choose to enroll. As a comprehensive program, H.O.P.E. provides parenting students with transportation, on-site childcare, counseling and social worker services, health care services, and prenatal and parenting education (Gary).

**Healthy pregnancy curriculum:** The Teenage Parent Programs in Florida are required to provide a comprehensive educational program for students who are pregnant, or students who are already parents, and their children (Teenage Parent Programs, 2002). A portion
of this mandatory educational program includes a course entitled, “Health for Expectant Parents” (see Appendix A for the Florida Department of Education’s curriculum framework). The Health for Expectant Parents course at the H.O.P.E. program meets 85 minutes a day, five days a week, for a nine-week grading period. Students are issued a grade of A, B, C, D, or F and earn .5 elective credits for a passing grade. All students who are admitted into the program while pregnant are required to take this course. For the purposes of the present study, students who have successfully completed the healthy pregnancy curriculum have met the course objectives with a grade of an A, B, or C for the course.

**Low birth weight:** Low birth weight infants are born weighing less than 2,500 grams or 5.5 pounds (Brooks, Byrd, Weitzman, Auinger, & McBride, 2001; Florida Department of Health, 2003).

**Extremely low birth weight:** Extremely low birth weight is characterized as a birth weight of less than 1,500 grams (Brooks, et al., 2001; Hack, et al., 2002).

**Tobacco Use:** Tobacco use, for the current study, is limited to smoking of cigarettes only. Other forms of tobacco use were not considered.

**Apgar score:** Apgar score is a uniform method of assessing the general physical condition of a newborn at one minute and five minutes after delivery (Martin et al.,
2002). The five parameters, scored from zero to two, include heart rate, respiratory effort, reflex irritability, muscle tone, and color (Apgar, 1953).

**Low Apgar score**: An Apgar score of less than three at one minute or less than six at five minutes after birth is considered a low Apgar score (Hegyi et al., 1998).

**Significance of the Study**

There is a paucity of research examining the relationship of low birth weight and healthy pregnancy programs for adolescent mothers. Although a number of studies have documented the increased risk of low birth weight for infants born to adolescent mothers (Alan Guttmacher Institute, 1999; American Academy of Pediatrics, 1999, 2001; Fraser et al., 1995; Lowenthal & Lowenthal, 1997; McCarton, 1998; Roth et al., 1998), there appears to be few studies examining the relationship of low birth weight and healthy pregnancy programs for adolescent mothers and no research was found identifying specific curriculum components that are the most beneficial. However, of the studies completed since 1999 and reviewed by this researcher, four found adolescents participating in a school-based healthy pregnancy program experienced more positive outcomes including fewer low birth weight infants (Barnet, Duggan, & Devoe, 2003; Meadows, Sadler, & Reitmeyer, 2000; Weinman, Soloman, & Glass, 1999), earlier entry into prenatal care (Philliber et al., 2003) and an increase in academic success (Weinman et al.).

This study is significant because of the paucity of research documenting the relationship between healthy pregnancy education and birth outcomes. Furthermore, the
current study is significant since it is the only research that identifies specific components of curriculum for healthy pregnancy education, which have the greatest affect on adolescent mothers.

Conceptual Framework

Ecological Theory

The study presented here uses ecological theory as a framework to examine the constructs central to teen parenting programs. Ecological theory was initially formulated as a socio-cultural view of human development to help explain differences in child development and how an individual develops within a context of environments (Bronfenbrenner, 1979). Bronfenbrenner defines development as “a lasting change in the way in which a person perceives and deals with his environment” and compared the ecological environment as “a set of nested structures, each inside the next, like a set of Russian dolls” (p. 3). The ecological perspective focuses, not only on the environments in which an individual develops, but also the relationships and interconnections between the situations. Bronfenbrenner further claims a person’s development is strongly affected by events taking place in situations in which the person is not even present, such as the influence of parental employment on child development.

Various researchers have used ecological theory to examine such diverse issues as family functioning (Meyers, Varkey, & Aguirre, 2002), sex role attitudes and behavior development of adolescent males and females (Nelson & Keith, 1990), self-regulation and self-worth of children (Murry & Brody, 1999), and health promotion behaviors
(Grzywacz & Fuqua, 2000; Meschke, Bartholomae, & Zentall, 2002). Additionally, positive outcomes for teenage mothers (Manlove & Carrie, 1996) and the impact of adolescent parenting on families (Chase-Landsdale & Brooks-Gunn, 1992) have been considered within a framework outlined by ecological theory. Therefore, due to its comprehensive nature, ecological theory might also prove useful to understand a program designed to improve the outcomes of adolescent pregnancy as presented in the present study.

The ecological theory, as described by Bronfenbrenner (1979), portrays human development within environmental levels of systems. The first level of influences, described as a microsystem, includes an individual’s immediate environment, and is shaped by behaviors, roles, and relationships within specific physical situations. The microsystem consists of people with whom one interacts, as well as the connections between others and their indirect influence on people with whom the individual relates.

By applying Bronfenbrenner’s (1979) ecological theory to a pregnant adolescent, the microsystem would be comprised of the father of the baby, the adolescent’s family of origin, her friends, school, and the neighborhood in which she lives. Following the birth of her baby, the infant then becomes a significant influence in the microsystem and might change others in her microsystem. For example, her friends without children might not have as much in common after the birth of the baby and may have other interests where babies are not involved.

The mesosystem represents the second level of influences as described by ecological theory (Bronfenbrenner, 1979). The interrelations between the various microsystems are examined at the mesosystem level. Interactions between family and
friends, family and school, friends and school, friends with other members of the peer group will all affect the pregnant adolescent. A pregnant adolescent might experience difficult relationships that also involve her, such as the rejection of her boyfriend by her peers or family, or the rejection of her peers or family by her boyfriend.

The third level is the exosystem with a focus on social settings and events over which the individual has no control and is not an active participant, but still experiences influence from (Bronfenbrenner, 1979). For example, a pregnant adolescent living with her single mother is influenced by her mother’s employment, income, and friends. The pregnant adolescent’s siblings and their classmates at school, friends, and activities will also have an effect in the life of the pregnant adolescent.

Macrosystems, compromising the fourth level, explains that the ideologies of the cultures and ethnicities of the society that the individual is part of also impacts the individual (Bronfenbrenner, 1979). For a pregnant adolescent, the culture and religion of her background influences her attitudes regarding her own pregnancy as well as other individuals within her microsystem. Additional dynamics shaping a pregnant adolescent’s views include the attitudes and policies of our society regarding teenage pregnancy (L. Sadler, personal communication, January 13, 2005).

In addition to the levels of systems influencing development, Bronfenbrenner (1979) also describes shifts in a person’s roles during their life as “ecological transitions” (p. 6). He claims that, “Roles have a magiclike power to alter how a person is treated, how she acts, what she does, and thereby even what she thinks and feels.” (p. 6). Therefore, following this description of ecological transitions and the influence of roles,
the experiences of pregnancy and parenthood would have profound effects on the development of an adolescent.

Health researchers Grzywacz and Fuqua (2000) outline the following principles that characterize an ecological perspective:

- different dimensions of well-being are reciprocally related and linked to diverse conditions in the sociophysical environment;
- individual and community well-being are contingent upon multiple aspects of the person/population, as well as multiple dimensions of the environment fit;
- certain individual or environmental conditions exert a disproportionate amount of influence on health and well-being;
- the physical and social environments are interdependent;
- a comprehensive understanding of health results from multidisciplinary approaches. (p. 102)

Additionally, Grzywacz and Fuqua (2000) maintain the ecological perspective requires “an interdependent, multidimensional, multilevel, interactional view of the etiology of individual or community health” (p. 102). They explain that even though this view necessitates a complex and holistic perspective, some individual and environmental factors force a disproportionate impact. The issues associated with socioeconomic status, the family, employment or school, and the interrelations between work (or school) and family are four areas identified as having a significant amount of influence on health (Grzywacz & Fuqua).

Grzywacz and Fuqua (2000) found lower socioeconomic status to be consistently linked to poorer health. They contend that often research looks at only one indicator to determine socioeconomic status, such as income or level of education. This practice does not consider the multiple dimensions and levels of socioeconomic status and assumes that all indicators have the same influence. Grzywacz and Fuqua argue that a more
comprehensive approach is needed to provide a clear understanding of socioeconomic status and health to help establish more successful interventions and treatments. Additionally, even though socioeconomic status (SES) cannot be subject to direct intervention, Grzywacz and Fuqua contend “several proposed mediators—social support, life stress, environmental strain, access to healthcare, lifestyle, and psychological resources—link SES to health can be targeted by health practitioners to lessen the negative impact of socioeconomic disadvantage.” (p. 106). Lifestyle choices, such as smoking, binge drinking, and dietary habits are behaviors that may be targeted for intervention to reduce the harmful health effects of lower socioeconomic status.

The second factor identified by Grzywacz and Fuqua (2000) exerting a substantial impact on health is the family. The family directly influences an individual’s attitudes and beliefs regarding health. Additionally, family structure, social integration, home hygiene, dietary practices, and emotional support all influence health related practices and values of the family members.

The influence of work or school is the third factor described by Grzywacz and Fuqua (2000) to have significant influence on health. Physical, social, and psychological features of employment or school have direct and indirect influences on health, according to the researchers. For example, Grzywacz and Fuqua describe situations in which school-based interventions may be undermined by the behaviors of the peer group. When an intervention is delivered in a peer group and the social norms of the group are the targets for change, laughter and negative comments may actually escalate the problem behavior.
The fourth factor identified by Grzywacz and Fuqua (2000) is the interrelations between work, or school, and family. They concluded that, “work-family interface can be characterized as either positive or negative and can have both positive and negative effects on health” (p. 108).

Grzywacz and Fuqua (2000) maintain that the use of ecological models can lead to a better understanding of health and help provide more effective interventions. People live in complex environments and successful health treatments and interventions need to be designed with that understanding, claim the researchers. Using the ecological theory as a conceptual framework for this study, the next section of this chapter will present the research questions.

**Research Questions**

The research questions presented here use a definition of an adolescent as less than 18 years old. Success in the healthy pregnancy curriculum is defined as a grade of A, B, or C for the nine-week course taken during the first or second trimester of pregnancy.

1. Is there a difference in the rate of low birth weight infants between adolescents who have successfully completed a healthy pregnancy curriculum and those who have not?

2. Is there a difference between the self-reported tobacco use during pregnancy between adolescents who have successfully completed a healthy pregnancy curriculum and those who have not?
3. Is there a difference in the Apgar scores between adolescents who have successfully completed a healthy pregnancy curriculum and those who have not?

4. Which components of the state required curriculum do participants of the healthy pregnancy curriculum perceive as the most important and the most helpful?

Methodology

Population

The population for the present study consists of all adolescents who gave birth to a single child in one South Florida County during the period of time from October 1999 to November 2003. Adolescents who gave birth during this interval would have been eligible to enroll in the healthy pregnancy curriculum at the H.O.P.E. program during their first or second trimester of pregnancy during the four academic years of 1999/2000 to 2002/2003. There were 199 adolescents in this county who gave birth from October 1999 to November 2003.

Two samples were selected from the quantitative study population. The first sample was identified as participants and included the 50 adolescents from the population who successfully completed the healthy pregnancy curriculum during their first or second trimester of pregnancy with a grade of A, B, or C. The second sample was identified as non-participants and was comprised of the 149 adolescents who had given birth in the same county from October 1999 to November 2003 and who did not successfully complete the healthy pregnancy curriculum or who did not enroll in the H.O.P.E. teen parent program.
Additionally, for the qualitative portion of the research, a questionnaire, focus group discussions, and follow-up interviews were conducted with a convenience sample of seven former students from the above population. This purposive sample was limited to students who successfully completed the healthy pregnancy curriculum during the school years 2001/2002 and 2002/2003, and who were available to the researcher.

Data Collection

The first section of the current study sought to answer research questions one, two and three by looking at retrospective data to determine if there are differences in birth weight of infants, tobacco use during pregnancy, and Apgar scores of infants between pregnant adolescents who successfully completed a healthy pregnancy curriculum and those who did not. The retrospective data on adolescent births from 1999 to 2003 were obtained from the Health Department Office of Vital Statistics. Data indicating the age of the mother, the birth weight of the infant, self-reported tobacco use during pregnancy, and the Apgar scores for the infant at one-minute and five-minutes were provided.

The school nurse of the H.O.P.E. teen parent program made available a list of all students who had given birth during the same four years. School records from The Academy indicated which students successfully completed the healthy pregnancy curriculum during their first or second trimester of pregnancy with a grade of A, B, or C.

The second section addressed research question four by examining perceptions of the adolescent mothers regarding the ten major concepts included in the State of Florida required curriculum framework for the Healthy Pregnancy Curriculum (see Appendix A)
through the use of a questionnaire, focus group discussions, and follow-up interviews. A convenience sample of seven former students who were over the age of 18 years by March 2004 and who successfully completed the healthy pregnancy curriculum during academic years of 2001/2002 to 2002/2003 were contacted to complete a questionnaire and participate in a focus-group discussion, and follow-up interview. Additional inclusion criteria for this sample consisted of adolescents who gave birth to a live infant, had a singleton birth, retained custody of the child, was not currently pregnant, and had not given birth to a second child.

Two focus groups, one of three former students and one of four former students, were asked to complete questionnaires and to take part in a discussion regarding their perceived importance and helpfulness of various healthy pregnancy curricular components. Since the researcher was also the teacher for the healthy pregnancy curriculum, an administrator and the childcare director from the school administered the questionnaires and conducted the focus group discussions to provide a more neutral atmosphere and to encourage honest responses.

The follow-up interviews of the focus group participants were conducted by telephone two to three days after the focus group sessions had taken place. The purpose of the follow-up interviews was to allow participants to contribute further information they may have considered after the focus group session or add comments they perhaps did not feel comfortable expressing in the group setting.
Data Analysis

All data analyses were conducted utilizing the Statistical Package for the Social Sciences (SPSS-Window), version 11.0. The first three research questions were analyzed using descriptive statistics and an independent t-test. The incidence of low birth weight, tobacco use during pregnancy, and one-minute and five-minute Apgar scores among the adolescent mothers who successfully completed the healthy pregnancy curriculum were compared to the adolescent mothers who did not participate in a healthy pregnancy curriculum. The questionnaires for the fourth research question were analyzed using descriptive statistics and the Frequencies subprogram of SPSS. The focus group discussions and follow-up interviews for the fourth research question were recorded and transcribed. The focus groups and follow-up interviews data were analyzed by using coding categories to help identify prominent themes.

Limitations and Assumptions

The present study is limited to adolescents who gave birth in a single county in south Florida during the time period from October 1999 to November 2003. Adolescents who gave birth during this interval would have been eligible to enroll in the healthy pregnancy curriculum during their first or second trimester of pregnancy corresponding to the four academic years of 1999/2000 to 2002/2003. Since the population for the current study is small and represents pregnant adolescents from only one county, generalizations might not be possible from this population to others. Additionally, since all the participants were former students of the researcher, and also knew the school’s
administrator and childcare director, the influence of personal relationships cannot be
discounted and may have biased the questionnaire and focus group responses.

Any differences noticed between the students who completed the healthy
pregnancy curriculum and those who did not, might not be due exclusively to the effects
of the program. Once students are enrolled into the H.O.P.E. teen parent program, they
have access to a range of services beyond the healthy pregnancy curriculum. Healthy
Start, Healthy Families, health care, social worker services, and the free or reduced
school lunch program are all services for which the students might qualify and could
possibly influence birth outcomes.

Assumptions are made based on the completeness and accuracy of data reported
by the Health Department Office of Vital Statistics, the school nurse and school records.
Since the use of tobacco among pregnant adolescents for the present study is self-
reported, it is further assumed that the adolescents were truthful in their responses.
Additionally, it is assumed that the responses from the questionnaires, interviews, and
focus groups are honest and complete.

Organization of the Study

Chapter 1 has provided an introduction to the problem of the study and outlined
the limitations. Chapter 2 supplies a review of the literature relevant to the problem.
Chapter 3 explains the methodology used for data collection and analysis. Chapter 4
describes the data and the analysis. Chapter 5 discusses the findings, implications, and
recommendations.
CHAPTER 2
REVIEW OF LITERATURE

The literature reviewed here examines the role of teen parenting programs in promoting improved outcomes for infants born to adolescent mothers. The first part provides an analysis of issues surrounding teenage parenting in the United States including an analysis of a landmark study, effects of early childbearing on the adolescent, and the incidence of adolescent pregnancy and birth rate. The second part considers the negative outcomes for children born to adolescent mothers, specifically, the influences of tobacco use and Apgar scores on the incidence of low birth weight infants. The last section discusses previous research of teen parenting programs, outlines recommendations that have been made for school-based teenage parenting programs serving pregnant adolescents, and describes the role Florida has played in the development of teen parenting programs.

Teenage Parenting: Analysis of a Landmark Study

Teenage pregnancy and parenting in the United States is considered by many researchers to have a significant impact on many different levels of society (Alan Guttmacher Institute, 1999; American Academy of Pediatrics, 2001; Chandra, Schiavello, Weinstein, & Hook, 2002; Cowden & Funkhouser, 2001; Fessler, 2003; Maynard, 1996;
Phipps, Blume, & DeMonner, 2002; Phipps & Sowers, 2002; Rauh, Andrews & Garfinkel, 2001; Roth, Hendrickson, Schilling, & Stowell, 1998; Southern Institute on Children and Families, 2002; Ventura, Mosher, Curtin, Abma, & Henshaw, 1999; Wertheimer et al., 2001). A landmark study completed in 1996 to examine these issues by providing a synthesis of previous research regarding the consequences of adolescent childbearing is Kids Having Kids: Economic Costs and Social Consequences of Teen Pregnancy (Maynard, 1996). This project attempted to discover the extent that the negative outcomes of adolescent parenting are attributable to the young pregnancy rather than to the environment in which these parents reside. Maynard maintains there are at least three social issues prompting the public’s concern regarding adolescent childbearing. These issues include the high poverty rates that exist among children, the large number of welfare recipients, and thirdly, the high proportion of young and never-married women receiving welfare.

Another researcher, Hellerstedt (2002), has also expressed concern regarding the economic consequences of adolescent childbearing. She states that since adolescent parents usually rely on social agencies or adults to meet their economic needs, “The gap between reproductive maturation and social self-sufficiency is critical to why adolescent pregnancy and childbearing is defined as a ‘problem.’” (p. 1)

Results from Kids Having Kids (Maynard, 1996) present a number of concerns that affect young parents, their children, fathers of the children, and the United States. Among the concerns reported by the researchers is a continuation of poverty for the adolescent parents and their children, poorer educational outcomes for the mothers, a lack of employment opportunities for the mothers, and a poor outlook for children of the
adolescent parents. When compared to children born to women over the age of 19, Maynard reports that children born to adolescents are more likely to repeat a grade in school and perform worse on tests of cognitive development. Additionally, claims Maynard, these children are more likely to experience health problems starting with premature birth and low weight at birth. The report continues to describe that children born to adolescents are more likely to be abused or neglected and, as adults, male children are more likely to end up in prison when compared to children born to older parents. All this, claims Maynard, results in adolescent pregnancy and parenting costing the United States almost $7 billion every year in services and benefits.

Prior to and since the release of *Kids Having Kids* (Maynard, 1996), researchers have studied the impact of adolescent pregnancy and parenting upon the groups of individuals involved (Alan Guttmacher Institute, 1999; American Academy of Pediatrics, 2001; Chandra et al., 2002; Cowden & Funkhouser, 2001; Eure, Lindsay, & Graves, 2002; Fessler, 2003; Geronimus, 1997, 2003; Geronimus, Korenman, & Hillemeier, 1994; Grogger & Bronars, 1993; Hollander, 2001; Massat, 1995; Maynard, 1996; Phipps et al., 2002; Phipps & Sowers, 2002; Rauh et al., 2001; Roth et al., 1998; Satin et al., 1994; Southern Institute on Children and Families, 2002; Turley, 2003; Ventura et al., 1999; Wertheimer et al., 2001). Results from these studies have been inconsistent and some researchers (Geronimus, 1997, 2003; Geronimus et al.; Grogger & Bronars; Hollander; Massat; Turley) are not in agreement with Maynard and the conclusions offered in *Kids Having Kids*. For example, starting with the adolescents’ pregnancies, although some authors claim adolescent childbearing increases the risk for pregnancy-induced hypertension, anemia (Chandra et al.), eclampsia, and premature delivery (Eure
et al.), others have discovered that pregnancy complications are no greater for adolescents older than age 16 than for women 20 to 22 years old (Satin et al., 1994).

Discrepancies in the Landmark Study

Some of the information disclosed in *Kids Having Kids* does not support the overall pessimistic outlook of Maynard’s own claims (1996). For instance, Maynard asserts children born to adolescents do not perform as well in school and have lower scores on cognitive development tests. However, researchers Moore, Morrison, and Greene (1997), authors of the chapter in *Kids Having Kids* describing the effects on children born to adolescent mothers states children born to older teenagers (age 18 or 19) have no disadvantage regarding cognitive development and academic achievement when compared with children whose mothers were 20 to 21 years old at the time of birth. Moore et al. additionally found no significant difference in behavior problems reported in children whose mothers were age 17 or younger when compared with children with mothers who were 20 to 21 years old at the time of birth. These researchers discovered another unanticipated result: Children born to black mothers, ages 18 to 19, scored higher on tests of mathematics and reading recognition than children born to older black mothers 20 to 21 years old.

In their conclusion, Moore et al. (1997) claim that children of adolescent mothers, in general, are more likely to have lower cognitive achievement scores. However, Moore et al. also admit they “found little evidence of disadvantage for the offspring of young
teen mothers in physical or psychological well-being or in behavior problems, either as children or as adolescents or young adults” (p. 170).

Further discrepancies may be noted in the research examining the incidence of maltreatment among children of adolescent parents. Although Maynard (1996) states the *Kids Having Kids* study found that children of adolescents were twice as likely to be abused or neglected when compared to children of parents older than 19, a study completed in Illinois (Massat, 1995) examined 23,764 cases of maltreatment and determined that adolescent parents were not over-represented among maltreating parents or among parents of children in foster care.

These inconsistencies in studies investigating outcomes for parenting adolescents and their children have not gone unnoticed by the researchers. Pediatrician and researcher, Kathryn Bondy Fessler (2003) explains:

> The research that addresses adolescent childbearing can be divided into three literatures: 1) the early years that introduced the impression of profound disadvantage resulting from adolescent childbearing, 2) the “diversity of outcomes” era ushered in by Furstenburg in 1987, and 3) the current era in which assumptions are being challenged and creative methodologies are being used to test new ideas.” (p. 181)

*Environmental Factors May Lead to Poor Outcomes*

Author, Massat (1995) argues, “The idea that adolescent parenthood is a social problem with unquestioned negative consequences is almost a truism,” (p. 325). Massat maintains that age itself may not be a dependable predictor of outcomes associated with adolescent parenthood and suggests other variables, such as the quality of prenatal health care and socioeconomic status of the mother, may play a more significant role in the
effects of early childbearing. Additionally, Massat claims the factors that produce disadvantages for the children of adolescents are social, not biological, and “Thus, poverty and lack of opportunity appear to be the mechanisms that have produced the findings of poor outcomes for adolescent parents” (p. 327).

Lois S. Sadler, Professor of Nursing at Yale University and author of several studies reviewed in this dissertation, agrees that factors other than maternal age may significantly affect outcomes of adolescent parenthood. She states that in addition to the factors mentioned by Massat, other key influences are directly related to the quality of the mother-child interaction (L. Sadler, personal communication, January 13, 2005).

Researchers Arline Geronimus (1997, 2003), Saul D. Hoffman (1998), and Katherine Schultz (2001) support Massat and Sadler’s conclusions. Geronimus contends, “Empirical findings related to child development and school achievement also fail to provide consistent or strong endorsement for the political viewpoint that teen childbearing harms children” (p. 415). She claims that studies which demonstrate a relationship between adolescent childbearing and poor birth outcomes were premature to conclude that the young childbearing caused the poor outcomes (2003). Hoffman agrees with this assessment of adolescent parenting. He states, “It is certainly fair to say that current research no longer supports the notion that teenage childbearing is a devastating event” (p. 243). Schultz also argues that “babies are not always born to teenagers out of helplessness, nor do they always lead to disastrous consequences. They do shape both the visions and actual plans these young women construct for their futures.” (p. 596).

Geronimus’ studies (1997, 2003) have found that among women suffering from the highest poverty rates, especially African American women, birth outcomes, such as
rates of low birth weight and infant mortality, are better for adolescents in their middle or late teenage years than for women older than age 20. Geronimus suggests the health of this population of women may deteriorate as they age and thus, bearing children as adolescents could improve birth outcomes for both the mothers and their offspring. Referring to African Americans in high-poverty urban areas, Geronimus remarks that the majority of the public are not aware that, “early childbearing may act to reduce rates of infant mortality and the risk of being widowed or orphaned, along with their adverse effects on family economies and caretaking systems” (2003, p. 882).

**Inconsistencies in Adolescent Birth Outcomes**

Other studies have shown varied results in adolescent birth outcomes, often linking effects to the age of the adolescents (Amini, Catalano, Dierker, & Mann, 1996; Beachum-Bilby, 1997; Fessler, 2003; Geronimus et al., 1994; Hollander, 2001; Turley, 2003). Researchers Amini et al. analyzed births at one inner-city medical center over a 19-year period (1975-1993) to compare the birth outcomes of adolescents with those of adult women. Of the 69,096 births that occurred, 2.7% were to women 12 to 15 years old, and 25.3% of births were to women 16 to 19 years old. During the 19 years in question both the number and the rate of births to adolescents decreased. Although the average gestational age and birth weight for the women 12 to 15 years was significantly lower than for the other two age groups, the 16 to 19 year age group had longer gestational ages and higher birth weights than did the adult women. The younger adolescent mothers experienced poorer birth outcomes than the older adolescents or the
adult women and thus, the study concluded, obstetric outcomes for all adolescents cannot be grouped together.

An earlier study conducted by Geronimus et al. (1994) used first cousins in an attempt to ascertain the effect adolescent childbearing has on child development. Since the mothers of the cousins shared the same family of origin, the methodology provided control for family background. The results from this study led Geronimus et al. to claim that differences in child development are due to family background and young maternal age does not necessarily result in poor child development.

A second investigation of data from first-born cousins, ages three to 16, additionally suggests that family background is a more significant influence on child outcomes than the mother’s age (Turley, 2003). Ruth Lopez Turley, while replicating the Geronimus et al. (1994) study of cousins, found that children whose aunts were adolescent mothers had lower test scores and more behavior problems, as did the children of adolescent mothers, even though their own mothers were not adolescents. Thus, this study of cousins also concludes that poor outcomes of children should not be attributed to maternal age and reinforces the Geronimus et al. position.

Another study, which found educational problems experienced by children of adolescents to be a result of socioeconomic and demographic factors rather than a direct result of the mothers’ age, was conducted to determine if the children of adolescent mothers have a higher risk of educational disabilities when entering kindergarten (Hollander, 2001). The records of 339,171 children born in Florida were examined to establish the odds of children born to adolescent mothers being placed in a regular class or a class for children with academic problems. Although children of adolescent mothers
had higher odds of being in classes with mental handicaps, emotional handicaps and academic problems, Hollander reports that once the mother’s education, marital status, poverty level and race were controlled, these children did not show increased odds of unfavorable outcomes. Interestingly, when compared with children born to mothers ages 20 to 35, the researcher discovered that those born to adolescent mothers had lower odds of being placed in classes with moderate mental handicaps or academic problems (Hollander).

Pediatrician Kathryn Bondy Fessler (2003) and author Shelia Beachum-Bilby (1997) agree that outcomes resulting from early childbearing are diverse and complex. Fessler maintains that the independent effect of having an adolescent mother on children is unknown and that poverty is a better predictor than maternal age of outcomes for the child and the adolescent. Beachum-Bilby concluded that adolescent pregnancy does not cause poverty, although the issues resulting from early childbearing may perpetuate poverty. Fessler argues that social circumstances, such as limited educational opportunities and violence, also contribute to poor outcomes and maintains that social, economic, and educational outcomes for adolescent mothers may not differ significantly from older women of comparable economic and social backgrounds.

Fessler (2003) further warns that media representations and political agendas color popular perceptions of adolescent pregnancy and parenting. She explains that since these perceptions may be based on incomplete or inaccurate information, the result is a belief in unanimous harmful outcomes for adolescent parents and their children. Agreeing with Fessler, Schultz (2001) states the public discussion about adolescent pregnancy is regulated by the media and by adult professionals. Thus, Fessler cautions
that pregnant and parenting adolescents may experience tremendous social stigma and as a result of negative public perceptions, might further encounter health care providers who are not comfortable working with pregnant adolescents. Therefore, pregnant and parenting adolescents could suffer negative effects on their health and well-being from these inaccurate, though common, beliefs.

Effects of Early Childbearing on the Adolescent

Studies have also been undertaken to discover the effects of adolescent childbearing on the young mother (Ahn, 1994; Grogger & Bronars, 1993). A study completed by Grogger and Bronars examined adolescent mothers of twins compared to adolescent mothers of a single infant ten years after they had given birth. This research was designed to examine the effects of an unplanned birth, which was represented by the second twin. Among black women with an unplanned birth as an adolescent, they found significantly lower rates of high school graduation and employment. They were also more likely to live in poverty and receive welfare. The results were similar for white women with higher rates of poverty, more receipt of welfare, and lower family income.

Additional research has further examined the relationship between giving birth as an adolescent and high school completion. Using data from the National Longitudinal Survey of Youth (for years 1979-1987), Ahn (1994) discovered that there is a 50% reduction in the likelihood of high school completion among women who gave birth as an adolescent. The Annie E. Cassie Foundation (2004) estimates that only about one-third of adolescent mothers graduate from high school. Moreover, the research indicated that there is a lower probability of advanced education or earning high wages and a greater
chance of divorce when compared with women who delayed childbearing (Ahn). After examining responses from 5,541 women, Ahn concluded that the negative relationship between adolescent parenthood and high school completion might be attributable only in part to the childbirth itself. Individual differences and family background differences, such as education level of parents, the number of siblings, and the mother’s work status, also contribute to the reduced rate of high school completion for women who were adolescent mothers (Ahn).

However, not all authors agree that adolescent parenting results in only negative affects for the young mothers (Fessler, 2003; Schultz, 2001). Schultz completed a qualitative study of pregnant and parenting adolescents in their senior year of high school. She found that, for the young mothers she interviewed, pregnancy and motherhood assisted in their success and contributed to their persistence in school. Schultz further contends,

Schools, communities, and students themselves often give up when a high school student has a baby. At the same time that young mothers were being pathologized and portrayed as failures in the press, there were young women in this high school who turned the experience of having a child during their high school years into a reason to stay in school. (p.592)

Schultz (2001) concludes that the common assumption that adolescent pregnancy leads to poverty and failure is an incomplete analysis. She also argues that even when parenting adolescents have carefully designed goals for their future, it is difficult for them to follow through with those plans due to the difficulties of parenthood combined with the fact that adults in their lives sometimes give up on them. “When the world assumed
their failure, it was difficult for them to keep reimagining their own success.” (Schultz, p.594)

**Adolescent Birthrate Data**

**National Adolescent Birthrate**

Although the adolescent birthrate in the United States has declined steadily since the early 1990s, there are still a considerable number of adolescents who give birth each year. The number of births to adolescents, ages 15 to 19, in 2002 was 425,493 (Martin et al., 2003) and during 2003 was 414,961 (Hamilton, Martin, & Sutton, 2004). This corresponds to a birth rate of 43 births per 1,000 women (ages 15 to 19) for 2002 and is a decrease of 30% from the rate of 61.8 births per 1,000 women (ages 15 to 19) reported in 1991 (Martin et al.). This trend continued in 2003 with a birth rate of 41.7 births per 1,000 women (ages 15 to 19) representing a decrease of 33% since 1991 (Hamilton, Martin, & Sutton).

Data from the National Vital Statistics Reports (Hamilton, Martin, & Sutton, 2004; Martin et al., 2003) further show a decrease in the rate of births for all adolescent age groups. The 2002 birth rate for adolescents 10 to 14 years of age was 0.7 (Martin et al.) and further dropped to 0.6 for 2003 (Hamilton, Martin, & Sutton). This is a decline of about 50% from the 1994 rate (Hamilton, Martin, & Sutton). The rate for women, ages 15 to 17, during 2002 of 23.2 was 40% lower than the 1991 birth rate (Martin et al.). Another 3% decrease was experienced from the 2002 rate in 2003 with a birth rate for women, ages 15 to 17 of 22.4 (Hamilton, Martin, & Sutton). While older teenagers, ages 18 and 19, experienced higher rates of births for 2002 and 2003 when compared with the
other adolescent age groups, the rate of 72.8 for 2002 (Martin et al.) and 70.8 for 2003 (Hamilton, Martin, & Sutton) still represents reductions of 23% and 25% respectively, from 1991.

Rates of adolescent births (ages 15 to 19) vary significantly from one state to another (Martin et al., 2003). Since 1991, all states have experienced a decrease in the rates of births to adolescents, with 19 states reporting a decline of 30% or more. In 2002, New Hampshire had the lowest rate of births to adolescents (ages 15 to 19) with 20 per 1,000 adolescent girls. The state with the highest rate was Mississippi reporting 64.7. Even though Florida’s rate of births to adolescents (ages 15 to 19) is historically higher than the national rate (Florida Department of Health, 2004), Florida nevertheless, experienced a decrease of 34% in the adolescent birth rate from 1991 to 2002. The 2002 rate for Florida of 44.5 (Florida Department of Health, 2004) was somewhat above the national rate of 43.0 for the same year (Martin et al., 2003).

*State and Local Adolescent Birthrate*

Although Florida has experienced adolescent birth rates that are equal to or higher than the national rates, until 2003 adolescent birth rates for Charlotte County had been lower than both the state and national rates. Charlotte County’s adolescent birth rates, especially for the younger adolescents ages 15 to 17, have experienced an increase in recent years (as shown in Table 1) (Florida Department of Health, 2005). Of the 1,047 births in Charlotte County during 2003, 137 were to adolescents ages 15 through 19 (Florida Department of Health, 2005). This is a birth rate of 39.9 and is although lower
than the state rate of 42.4 and the national rate of 41.7, this rate represents an increase from the 2002 rate of 38.6 (as shown in Table 2) (Florida Department of Health, 2005).

Table 1
Birthrate per 1,000 to Women, Ages 15 to 17 Classified by Date

<table>
<thead>
<tr>
<th></th>
<th>2002</th>
<th>2003</th>
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<tbody>
<tr>
<td>United States</td>
<td>23.2</td>
<td>22.4</td>
</tr>
<tr>
<td>Florida</td>
<td>23.6</td>
<td>22.4</td>
</tr>
<tr>
<td>Charlotte County</td>
<td>14.8</td>
<td>22.6</td>
</tr>
</tbody>
</table>

(Florida Department of Health, 2005; Martin et al., 2003)

The steady decline in adolescent birth rates (as shown in Table 2) is attributable to two factors, claims the Annie E. Casey Foundation (2004). First, fewer teenagers are sexually active and second, more of the sexually active teenagers are using contraceptives.
Table 2

Birthrate per 1,000 to Women, Ages 15 to 19 Classified by Date

<table>
<thead>
<tr>
<th></th>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>United States</td>
<td>58.2</td>
<td>51.3</td>
<td>47.7</td>
<td>43.0</td>
<td>41.7</td>
</tr>
<tr>
<td>Florida</td>
<td>63.3</td>
<td>56.1</td>
<td>50.6</td>
<td>44.3</td>
<td>42.4</td>
</tr>
<tr>
<td>Charlotte County</td>
<td>50.7</td>
<td>41.2</td>
<td>44.9</td>
<td>38.6</td>
<td>39.9</td>
</tr>
</tbody>
</table>

(Florida Department of Health, 2005, 2004; Henshaw, 2004; Martin et al., 2003)

Outcomes for Children of Adolescent Mothers

Research has found negative outcomes for infants born to adolescent mothers (Alan Guttmacher Institute, 1999; American Academy of Pediatrics, 1999, 2001; Beachum-Bilby, 1997; Chandra et al., 2002; Cowden & Funkhouser, 2001; Fessler, 2003; Fraser et al., 1995; Maynard, 1996; Phipps et al., 2002; Phipps & Sowers, 2002; Rauh et al., 2001; Roth et al., 1998; Southern Institute on Children and Families, 2002; Ventura et al., 1999; Wertheimer et al., 2001). For example, several researchers claim infants born to adolescent mothers are more likely to suffer from low birth weight and perinatal mortality (Chandra et al.; Fraser et al.). Phipps, Blume, and DeMonner found the post-neonatal mortality rate for infants born to mothers younger than 16 years was three times higher than for infants born to women 23 to 29 years old.

Research conducted by the Robin Hood Foundation (Beachum-Bilby, 1997) reports that as children born to mothers under the age of 18 become older they have more difficulty in school, experience poorer health, receive less health care, are subjected to less supportive and stimulating home environments, face higher rates of incarceration,
and higher rates of adolescent childbearing than children born to older parents. Thus, children of adolescent mothers are at a greater risk of developmental delay, behavioral disorders, and substance abuse than children born to older mothers (American Academy of Pediatrics, 1999). Authors suggest these negative outcomes are linked to low birth weight (Alan Guttmacher Institute, 1999; American Academy of Pediatrics, 1999, 2001; Beachum-Bilby; Chandra et al., 2002; Cowden & Funkhouser, 2001; Fessler, 2003; Fraser et al., 1995; Maynard, 1996; Phipps et al., 2002; Phipps & Sowers, 2002; Rauh et al., 2001; Roth et al., 1998; Southern Institute on Children and Families, 2002; Ventura et al., 1999; Wertheimer et al., 2001).

The next section of this chapter examines the literature on low birth weight. An overview will be given of the negative outcomes for children of low birth weight. These consequences attributed to low birth weight account for the multitude of studies that have been completed examining the relationship between low birth weight and maternal age (Becker & Teutsch, 2000; Boardman, Powers, Padilla, & Hummer, 2002; Centers for Disease Control and Prevention, 2002; Chandra et al., 2002; DuPlessis, Bell, & Richards, 1997; Fessler, 2003; Martin, Hamilton, Ventrua, Menacker, & Park, 2002; Maynard, 1996; MacDorman, Minino, Strobino, & Guyer, 2002; Paneth; Papillo et al., 2002; Phipps et al., 2002; Rauh et al., 2001; Roth et al., 1998; Ruch-Ross & Jones, 1992; Southern Institute on Children and Families, 2002; Ventura et al., 1999; Weitzel & Shockley, 2000; Wertheimer et al., 2001; White & Wang, 2000).
Relationship Between Low Birth Weight and Negative Outcomes for Children

The most important indicator of infant survival during the first 28 days of life is birth weight (Stevens-Simon & McAnarney, 1992). Roth, Hendrickson, Schilling, and Stowell (1998) state mortality rates are higher for infants weighing less than 2,500 grams at birth and the March of Dimes (2003) estimates low birth weight is a factor in 65% of infant deaths. A study by Kotagal (1993) found that low birth weight infants are 40 times more likely to die in their first 28 days.

Researchers Hack, Klein, and Taylor (1995) outlined six areas of affected outcomes for low birth weight children: neurosensory outcomes; cognitive and neurophysiological outcomes; behavior and social competence; school performance and academic achievement; health outcomes; and growth. The neurosensory outcomes that occur at higher rates among low birth weight children include cerebral palsy, hydrocephalus, blindness, deafness and seizures (Hack et al., 1995).

Children born with a low birth weight also tend to experience more negative cognitive and neurophysiological outcomes (Hack et al., 1995). One study found children born with low birth weight were three times more likely to experience attention deficit hyperactivity disorder and claims up to 13.8% of all attention deficit hyperactivity disorders might be attributed to low birth weight (Mick, Biederman, Prince, Fischer, & Faraone, 2002). Research of 170,874 Florida birth records found a strong association of birth weight with developmental delay or disability such as sensory impairment, metabolic disorders, neurological or severe attachment disorders (Thompson, Carter, Edwards, Ross, & Resnick, 2003). Additionally, lower scores on intelligence tests and assessments of language abilities (Viggedal, Lundalv, Carlsson, & Kiellmer, 2004), fine
and gross motor coordination (Hediger, Overpeck, Ruan, & Troendle, 2002; Paneth, 1995), and nonverbal reasoning and problem solving skills (Hack et al., 2002) have been found among children of low birth weight when compared with children of normal weight at birth.

Social competence and emotional problems have also been reported among low birth weight children at a rate higher than for normal birth weight children (Elgen, Sommerfelt, & Markestad, 2002; Hediger et al., 2002). Low self-esteem (Elgen et al.) and behavior problems (Elgen et al.; Liu, Sun, Neiderhiser, Uchiyama, & Okawa, 2001; McCarton, 1998) are also thought to occur with more frequency among low birth weight children.

The higher probability of poor school performance and academic achievement for children born with low birth weight is well studied (Avchen, Scott, & Mason, 2001; Boardman, Powers, Padilla, & Hummer, 2002; Breslau, Johnson, & Lucia, 2001; O’Keeffe, O’Callaghan, Williams, Najman, & Bor, 2003; Pinto-Martin, et al., 2004; Weindrich, Jennen-Steinmetz, Laucht, & Schmidt, 2003). Research has documented the negative effects of low birth weight on mathematics achievement (Boardman et al.; Breslau et al.; Pinto-Matin et al., 2004), vocabulary attainment (Weindrich et al.), reading scores (Boardman et al.; O’Keeffe et al.), and higher rates of special education placements (Pinto-Martin et al., 2004) when compared with children of normal birth weight.

Illnesses, such as early childhood asthma (Brooks, Byrd, Weitzman, Auinger, & McBride, 2001), upper and lower respiratory infections (Hack et al., 1995), ear infections (Hack et al., 1995), and insulin resistance syndrome (Li, Johnson, & Goran, 2001) are
more common among low birth weight children. Health problems relating to low birth weight are not “outgrown” during childhood, according to Poole et al. (2003) and Loos, Fagard, and Beunen (2001). As adults, men who were born with low birth weight experience higher rates of cardiovascular disease (Poole et al., 2003), women of low birth weight are more often diagnosed with high blood pressure (Loos et al.), and both genders have more osteoarthritis of the hand (Poole et al., 2003).

Growth during childhood, and lasting into adulthood may also be affected by low birth weight (Hack et al., 1995). A study of 3,344 Chinese children discovered higher rates of delay in developmental milestones, such as lifting the head, tooth eruption, sitting without support, walking, speech, and bedwetting cessation among children who had been born with a low birth weight as compared with children of normal birth weights (Liu et al., 2001). Another study of 3,035 adults found a relationship between birth weight and grip strength, which remained significant even after adjustments to the data set for older heights, weights, and social class (Kuh, Bassey, & Hardy, 2002).

According to sociologist Brian Karl Finch (2003), “One of the most important processes that may determine an infant’s chance of survival is birth-weight; birth-weight also has important implications for a child’s future health, development, and socioeconomic attainment” (p. 1828). The importance of birth weight as an indicator of infant health is confirmed by the Healthy People 2010 goal to reduce the rate of low birth weight births to no more than 5% of births (U.S. Department of Health and Human Services, 2002). Finally, the consequences attributed to low birth weight additionally accounts for the plethora of studies that have been completed examining the relationship between birth weight and maternal age (Becker & Teutsch, 2000; Boardman et al., 2002;
Centers for Disease Control and Prevention, 2002; Chandra et al., 2002; DuPlessis et al.
1997; Fessler, 2003; Martin et al., 2002; Maynard, 1996; MacDorman et al., 2002;
Paneth, 1995; Papillo et al., 2002; Phipps et al., 2002; Rauh et al., 2001; Roth et al., 1998;
Ruch-Ross & Jones, 1992; Southern Institute on Children and Families, 2002; Ventura et
al., 1999; Weitzel & Shockley, 2000; Wertheimer et al., 2001; White & Wang, 2000).

Mother’s Age and Low Birth Weight

According to researchers Roth, Hendrickson, Schilling, and Stowell (1998), the
investigation examining the influences responsible for the increased risk of adolescent
mothers having low birth weight infants tends to follow two directions. One line of
research explores the biological factors that may contribute to low birth weight births
among young mothers. Issues such as immaturity of the reproductive system,
competition of the fetus for nutrients with the mother, possible use of recreational drugs,
and inadequate weight gain during pregnancy are often the focus of this “nature” view.
Unlike the nature view that focuses on genetics, the “nurture” view is apt to center more
on socioeconomic and cultural concerns, such as the effects of poverty and minority
status (Roth et al., 1998). Authors Chomitz, Cheung, and Lieberman (1995) maintain
that although the relationship between lifestyle risk factors and low birth weight is
complex, healthful lifestyle behaviors (not smoking, adequate diet, and proper weight
gain) play an important role in determining fetal growth.

Stevens-Simon and McAraney (1992, 1995) have studied the influence biological
factors may have upon the increased rate of low birth weight births to adolescents. They
have explored the consequences inherent with pregnancies occurring within the first three years following menarche, or young gynecologic age. During these first three years, reproductive organs continue to grow and physiological changes continue to take place (Stevens-Simon, Beach, & McGregor, 2002). Studies suggest that during this period of young gynecologic age, the blood supply to the uterus and cervix has not completely developed. Thus, a restricted blood supply might also suggest some adolescents are more prone to develop infections that could lead to pre-term labor and delivery (Stevens-Simon & McAraney, 1995).

Other problems adolescents of young gynecologic age may experience during pregnancy are complications resulting from low levels of gonadal hormones. Stevens-Simon and McAraney (1995) claim a low level of these hormones could prevent a secure attachment of the fetus to the uterine wall thereby causing vaginal bleeding and premature contractions.

Further difficulties may occur during adolescent pregnancies due to small uterine volume (DaCosta, Filho, Ferreira, Spara, & Mauad, 2004). Through the use of ultrasound, a study of 828 patients, ages 10 to 40, found the uterine volume of females under the age of 20 to be significantly smaller when compared with women ages 20 to 40. DaCosta et al. suggests that these differences might be due to immaturity of the reproductive system and thus, contribute to a higher rate of premature deliveries among adolescent mothers.

Roth, Hendrickson, Schilling, and Stowell (1998) argue that young maternal age alone does not offer a sufficient explanation for the higher rates of low birth weight births to adolescents. They contend that a combination of factors, including biological,
socioeconomic, and cultural elements, as well as the impact of lifestyle choices made by
the pregnant adolescent, work in combination to influence birth weight outcomes.

Rates of Low Birth Weight

While adolescent birth rates have continued to decline in the United States, rates
of low birth weight have increased for births to women of all ages (Martin et al., 2003).
Even though low birth weight rates have also increased in Charlotte County, rates
reported for 2002 and 2003 are still lower than the state averages (as shown in Table 3)
(Florida Department of Health, 2005). Further, the rate of low birth weight births to
adolescents was higher than rates of births to other age groups (as shown in Table 4) on
both a state and national level. However, the adolescent low weight birth rate in
Charlotte County during 2000 (4.4) was less than half the national rate (9.5) for
adolescents and was less than the rate for all ages (5.8) in Charlotte County (Florida
Department of Health, 2003; Martin et al., 2002).

Table 3
Low Birth Weight Rates in Charlotte County, Florida, and United States (all ages)

<table>
<thead>
<tr>
<th></th>
<th>1996</th>
<th>2000</th>
<th>2001</th>
<th>2002</th>
<th>2003</th>
</tr>
</thead>
<tbody>
<tr>
<td>United States</td>
<td>7.4</td>
<td>7.6</td>
<td>7.7</td>
<td>7.8</td>
<td>7.9</td>
</tr>
<tr>
<td>Florida</td>
<td>7.9</td>
<td>8.0</td>
<td>8.2</td>
<td>8.4</td>
<td>8.5</td>
</tr>
<tr>
<td>Charlotte County</td>
<td>6.5</td>
<td>5.8</td>
<td>7.6</td>
<td>7.8</td>
<td>7.9</td>
</tr>
</tbody>
</table>

(Florida Department of Health, 2005, 2004; Martin et al., 2003)
Table 4

Low Birth Weight Rates, Ages 15-19

<table>
<thead>
<tr>
<th></th>
<th>2000</th>
<th>2002</th>
<th>2003</th>
</tr>
</thead>
<tbody>
<tr>
<td>United States</td>
<td>9.5</td>
<td>9.6</td>
<td>--</td>
</tr>
<tr>
<td>Florida</td>
<td>10.0</td>
<td>10.3</td>
<td>10.7</td>
</tr>
<tr>
<td>Charlotte County</td>
<td>4.4</td>
<td>7.8</td>
<td>13.9</td>
</tr>
</tbody>
</table>

Note. Dashes indicate the low birth weight rate was unavailable. (Florida Department of Health, 2005, 2004; Martin et al., 2003)

As is the case with rates of adolescent births, rates of low birth weight also vary by state (Martin et al., 2003). During 2002, the range of low birth weight for non-Hispanic white births extended from a low of 4.6% in Alaska to a high of 8.7% in West Virginia. For non-Hispanic black births in states reporting more than 1,000 such births, the range was from 9.8% in Iowa to 15.2% in Mississippi.

Outcomes of Low Apgar Scores and Low Birth Weight

Apgar score is a uniform method of assessing the general physical condition of a newborn at one minute and five minutes after delivery (Martin et al., 2002). The five parameters, scored from zero to two, include heart rate, respiratory effort, reflex irritability, muscle tone, and color (Apgar, 1953). Dr. Virginia Apgar designed the scoring system to be a “simple, clear classification or ‘grading’ of newborn infants which can be used as a basis for discussion and comparison of the results of obstetric practices,
types of maternal pain relief and the effects of resuscitation” (p. 206). However, since 1953 researchers have used Apgar scores for other purposes.

Authors Hubner and Juarez (2002) claim that in addition to the use of Apgar scores to identify newborns requiring resuscitation, scores have also been used to assess asphyxia and to predict survival and neurological impairment. Indeed, studies have shown low Apgar scores (less than six at five minutes) in preterm (Hegyi et al., 1998) and full term infants (Thorngren-Jerneck & Herbst, 2001) are associated with a higher risk of mortality. These results were further established with an analysis of 151,891 infants who were born between 1988 and 1998 (Casey, McIntire, & Leveno, 2001). Casey et al. found, of the 13,399 infants born preterm (26 to 36 weeks of gestation), the neonatal mortality rate was 315 per 1,000 for infants with a five-minute score of three or less, as compared to a rate of five per 1,000 for infants with scores of seven or better. There were 132,228 full term (37 weeks of gestation or more) infants included in the study. Full term infants with five-minute scores of less than three experienced a mortality rate of 244 per 1,000. However, among infants with scores of seven to ten, the mortality rate was 0.2.

Additional investigation discovered infants of normal birth weights and five-minute Apgar scores of three or less had a 386-fold increased risk for neonatal death when compared with infants with scores of seven or higher (Moster, Lie, Irgens, Bjerkedal, & Markestad, 2001). Furthermore, the low-Apgar score infants in this study also had a 81-fold increased risk for cerebral palsy.

Researchers Moster, Lie, and Markestad (2002) also found, when compared to infants of normal Apgar scores (seven to ten), children with a five-minute score of three or less had significantly higher risks of developing minor motor impairments and
epilepsy. The children with low Apgar scores were more likely to need extra resources in school, have more difficulty with reading and mathematics, and have more problems with aggression and anxiety.

Birth data reported by Martin, Hamilton, Venture, Menacker and Park (2002) showed, except for the non-reporting states of California and Texas, 1.4% of infants born in 2002 had low Apgar scores (below 7) at five minutes after birth. Although the rate of low Apgar scores decreased more than 30% from 1978 to 1993, the rate has remained unchanged since 1993. The same report further discovered that low birth weight infants are more likely than heavier infants to receive a low Apgar score. During 2002, 9% of low birth weight infants had low Apgar scores compared to 1% of normal weight infants.

Outcomes Associated With Smoking During Pregnancy

Tobacco use during pregnancy is a preventable risk factor associated with adverse outcomes (MacDorman et al., 2002; Martin et al., 2003; Ventura, Hamilton, Mathews, & Chandra, 2003). Research has clearly shown the rates of miscarriage (Martin et al., 2003; Ventura et al.), premature delivery and stillbirths (U.S. Department of Health and Human Services, 2004), intrauterine growth retardation, and low birth weight (MacDorman et al.; Martin et al., 2003; Ventura et al., 2003) increase when the mother smokes during pregnancy.

Additional health risks for infants whose mothers smoked during pregnancy include an increased risk of infant mortality (Salihu, Aliyu, Pierre-Louis, & Alexander, 2003), and specifically, sudden infant death syndrome (SIDS) (Taylor & Sanderson, 1995; U.S. Department of Health and Human Services, 2004). A study of over 3,000,000
births in the United States during 1997 determined the rate of infant mortality was 40% higher among births to women who smoked as compared to nonsmoking women (Salihu et al.). Salihu et al. estimated that about 5% of infants’ deaths were attributable to maternal smoking while pregnant and, further, 986 infant deaths could be avoided annually if women did not smoke during pregnancy.

Researchers Taylor and Sanderson (1995) found maternal smoking during pregnancy was significantly associated with sudden infant death syndrome (SIDS). They concluded that up to 30% of SIDS could be prevented if women avoided smoking during pregnancy. The U.S. Department of Health and Human Services (2004) also estimates infants whose mothers smoked during and after their pregnancy are at three to four times greater risk of SIDS.

Some health issues for infants born to smokers are immediately evident, such as effects to the central nervous system and the gastrointestinal system (Law, et al., 2003). Research conducted by Law et al. (2003), found the infants who were born to smokers were more excitable, showed more signs of stress, and required more handling. These symptoms were attributed to the neurotoxic effects of prenatal tobacco exposure and neonatal withdrawal from nicotine.

Additional health concerns for offspring of mothers who smoked during pregnancy may not be apparent for several years. At least one study (Thapar et al., 2003) has demonstrated an association between maternal smoking during pregnancy and the rates of attention deficit hyperactivity disorder among children. Fried, Watkinson, and Gray (2003) discovered a relationship between prenatal exposure to tobacco and lower overall intelligence in children 13 to 16 years old.
Mental health problems have also been explored with their relationship to maternal smoking during pregnancy. Children whose mothers smoked during pregnancy are thought to be at higher risk for antisocial behavior, such as conduct disorder and delinquency (Wakschlag, Pickett, Cook, Benowitz, & Leventhal, 2002). Researchers Ernst, Moolchan, and Robinson (2001) concluded their study of the behavioral and neural consequences of prenatal exposure to nicotine with the following statement. “Prenatal exposure to nicotine may lead to dysregulation in neurodevelopment and can indicate higher risk for psychiatric problems, including substance abuse. Knowledge of prenatal exposure to nicotine should prompt child psychiatrists to closely monitor at-risk patients.” (p. 639)

Smoking during pregnancy has also been linked to higher rates of childhood obesity. A study of 6,483 children, ages five to seven, found that when the mother reported she never smoked, the rate of overweight among the children was 8.1% and the rate of obesity was 2.2% (von Kries, Toschke, Koletzko, & Slikker, 2002). However, for children whose mothers reported smoking ten or more cigarettes a day during pregnancy, the rate of overweight was 17% and obesity was 8.5%.

The National Vital Statistics reports the frequency of low birth weight births to smokers during 2000, 11.9% compared to 7.2%, was two thirds higher than for nonsmokers (Martin et al., 2002). During 2002, 12.2% of infants born to smokers were low birth weight, as compared to 7.5% to nonsmokers (Martin et al., 2003). The U.S. Department of Health and Human Services (2004) estimates that a woman who smokes during pregnancy is between 1.5 and 3.5 times more likely to have a low birth weight infant than a nonsmoker. In fact, a study of 79,904 birth certificates found that having a
low birth weight infant was 58% more likely among the women who smoked when compared to nonsmokers (Magee, Hattis, & Kivel, 2004). Even “light smoking,” less than five cigarettes a day, has been related to lower birth weight (Ventura et al., 2003).

Table 5
Low Birth Weight by Smoking Status and Age of Mother in the United States

<table>
<thead>
<tr>
<th></th>
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<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>Smoker</td>
<td>11.9%</td>
<td>12.2%</td>
<td>11.4%</td>
<td>11.5%</td>
</tr>
<tr>
<td>Non Smoker</td>
<td>7.2%</td>
<td>7.5%</td>
<td>9.5%</td>
<td>9.5%</td>
</tr>
</tbody>
</table>

(Martin et al., 2003)

Rates of Smoking During Pregnancy

According to Vital Statistics for 2001, 12.2% of women reported smoking during pregnancy (MacDorman et al., 2002). During 2002, this rate dropped to 11.4%. Smoking during pregnancy has declined 42% since 1989 (Martin et al., 2003). The percentage of mothers who smoked while pregnant in Florida was 8.6 for 2002 (Florida Department of Health, 2004). Charlotte County, however, reported 23% of births to mothers who smoked during pregnancy for 2002 (Florida Department of Health).

Although pregnant adolescents have highest smoking rates of all age groups, MacDorman et al. (2002) found from 1999 to 2000, adolescent tobacco use during pregnancy decreased from 18.1% to 17.8%. The rate of smoking among pregnant
adolescents in 2001 further dropped to 7.5% (U.S. Department of Health and Human Services, 2004). Adolescents, ages 18 to 19, reported the highest rate of smoking during pregnancy at 19.2% for 2000 (Martin et al., 2002) and 18.2% for 2002 (Martin et al., 2003). White adolescents (ages 15 to 19 years) reported smoking during pregnancy at 30.2%; Hispanic adolescents reported smoking during pregnancy at 4.3% and blacks at 7.2% (MacDorman et al.).

Albrecht, Higgins, and Lebow (2000) conducted a study to investigate adolescents’ knowledge of the harmful effects of smoking during pregnancy and its relationship to efforts to quit smoking. Results showed the adolescents who quit smoking during a smoking cessation program had significantly higher knowledge following the program and a greater increase in their knowledge during the program, than did the participants who did not quit smoking. The researchers concluded that the adolescents’ knowledge about smoking was related to their efforts to quit. The results from this study reinforce the value of providing pregnant adolescents with information regarding effects their behaviors have for themselves and their developing fetuses.

Teen Parent Programs

Public Policy Regarding Teen Parent Programs

Although the rate of adolescent pregnancy and childbearing in the United States was highest following World War II, it was not until the 1970s when the birth rate had started to decrease that policymakers publicly addressed this issue (Vinovskis, 2003). The adolescent birth rate was 97.3 per 1,000 adolescents ages 15-19 in 1957. However, by 1960 the adolescent birth rate had dropped to 89.1 and further decreased to 68.3 by
1970. Historian Vinovskis states that the public’s concern regarding the adolescent birth rate in the 1970s and 1980s was due to the increased number of out-of-wedlock births, abortions, and welfare expenditures.

This concern was reflected in Arthur Campbell’s (1968) statement:

The girl who has an illegitimate child at the age of 16 suddenly has 90 percent of her life’s script written for her. She will probably drop out of school; even if someone else in her family helps to take care of the baby, she will probably not be able to find a steady job that pays enough to provide for herself and her child; she may feel impelled to marry someone she might not otherwise have chosen. Her life choices are few, and most of them are bad. (p. 238)

The public’s attention to the issues of the adolescent birth rate was reflected in 1978 by the Carter administration declaring the epidemic of teenage pregnancy as the number one domestic problem (Vinovskis, 2003). Further, President Clinton also referred to teenage pregnancies with no marriage as a serious social problem in his 1995 State of the Union address (Clinton, 1995). These concerns resulted mainly in efforts to decrease early sexual activity or prevent unintended pregnancies (Manlove & Carrie, 1996; Vinovskis).

The feminist movement in the late 1960s and early 1970s emphasized the need to keep pregnant adolescents in school, unlike the previous decades when pregnant adolescents were forced to quit school (Vinovskis, 2003). Equal educational opportunities became guaranteed for pregnant and parenting adolescents under the Title IX of the Education Amendments of 1972 (Solomon, 2003). Further, according to federal regulations, discrimination based on sex in education programs that receive federal financial assistance is prohibited:

[An educational program] shall not discriminate against any student, or exclude any student from its education program or activity, including any class or
extracurricular activity, on the basis of such student’s pregnancy, childbirth, false pregnancy, termination of pregnancy or recovery therefrom, unless the student requests voluntarily to participate in a separate portion of the program or activity of the [educational program] (Nondiscrimination, 2003, p. 403).

Additionally, federal regulations specify that admittance to a separate program for pregnant students is to be completely voluntary on the part of the student. Separate programs must be comparable to those programs offered to non-pregnant students. A medical leave of absence is also called for, without penalty, as is determined by the student’s physician (Nondiscrimination, 2003).

Although policymakers and the public have addressed some of the issues facing adolescent pregnancy and parenting, Vinovskis (2003) claims that attempts have been largely symbolic and the problems of educating pregnant and parenting adolescents have not been adequately analyzed. She further maintains that although researchers, policymakers, and the public are in agreement that education for this population is extremely valuable (Amin & Sato, 2004; Caulfield & Thomson, 1999; Fuscaldo, Kaye, & Philliber, 1998; Philliber, Brooks, Lehrer, Oakley, & Waggoner, 2003; Sadler, Swartz, & Ryan-Krause, 2003; Williams & Sadler, 2001), little guidance has been provided and many programs that are in existence focus on the student earning a General Equivalency Diploma (GED) instead of a regular high school diploma. Additionally, Vinovskis discovered the U. S. Office of Educational Research and Improvement did not even mention pregnant and parenting adolescents in its 112-page long-range research priorities plan and claims the U. S. Department of Education has not made education for pregnant and parenting adolescents a priority.
Design of Teen Parent Programs

Health researchers have suggested using a multidisciplinary and multilevel approach to effectively understand health related behaviors and provide effective interventions (Grzywacz & Fuqua, 2000; Meschke, Bartholomae, & Zentall, 2002). Since the reasons for poor pregnancy outcomes of adolescents may not result from a single cause, teenage parenting programs often use a comprehensive approach to facilitate improved outcomes for adolescents, their children, and their families (Batten & Stowell, 1996; Granger & Cytron, 1999; Klima, 2003; Ruch-Ross & Jones, 1992; Stephens, Wolf, & Batten, 1999; Williams & Sadler, 2001; Wolf, 1996). Issues such as nutritional deficiencies, the use of recreational drugs, tobacco and/or alcohol, emotional stress and less-than optimal prenatal care have all been suggested as factors contributing to poor pregnancy outcomes for adolescents and may be targets for intervention through a teen parenting program (Chandra et al., 2002).

Limitations of Research Investigating Teen Parent Programs

Since teen parent programs have not been well studied (Manlove & Carrie, 1996; Vinovskis, 2003), there is a lack of literature documenting outcomes. Further, it is difficult to synthesize existing research because the programs that have been studied vary greatly in design. For example, some programs serve only pregnant and not parenting adolescents (Barnet, Duggan & Devoe, 2003; Bensussen-Walls & Saewyc, 2001; Covington, Peoples-Sheps, Buescher, Bennet, & Paul, 1998; Meadows, Sadler, & Reitmeyer, 2000; Spear, 2001) and some serve only teen parents and their children.
(Caulfield & Thompson, 1999; Fuscaldo et al., 1998; Sadler et al., 2003; Williams & Sadler, 2001), while others serve both populations (Philliber et al., 2003; Weinman, Solomon, & Glass, 1999). Programs may be school-based (Fuscaldo et al.; Meadows et al.; Sadler et al.; Spear; Weinman et al.; Williams & Sadler), health-care based (Bensussen-Walls & Saewyc; Covington et al.), or use a home-visiting (Flynn, 1999) or residential model (Collins, Lemon, & Street, 2000). Components of programs also differ widely with some programs offering many services (Fuscaldo et al.; Meadows et al.; Philliber et al.; Sadler et al.; Spear; Weinman et al.; Williams et al.). Other programs are targeted to one specific goal such as contraceptive use (Amin & Sato, 2004) or nutrition education (Hunt et al., 2002).

Additionally, of the studies completed, caution must be used when generalizing the results due to the small numbers of participants included in most research. For example, Caulfield and Thomson’s (1999) study tracking adolescent parents following high school used a sample of 16 graduates. An evaluation of a teen parenting program conducted in 1998 included data from 31 adolescent mothers (Fuscaldo et al.). Additional studies of teen parenting programs reviewed data of 52 adolescent parents (Williams & Sadler, 2001), 18 adolescent parents (Sadler et al., 2003), and eight pregnant adolescents (Spear, 2001). Despite the fact that some researchers have reported larger samples, such as 184 pregnant adolescents in a prenatal education program (Covington et al., 1998), and 137 pregnant adolescents targeted for a home visitation program (Flynn, 1999), the results from these studies examining teen parenting programs are also considered limited due to their small sample size (Caulfield & Thomson; Fuscaldo et al.; Sadler et al.; Spear; Williams & Sadler). Though there is a paucity of research
investigating teen parenting programs, and specifically components of curricula used for healthy pregnancy education and resulting affects, the remainder of this chapter will report on studies that examine teen parenting programs and consider recommendations that have been made for the design of teen parenting programs.

School-Based Teen Parent Programs that Serve Adolescent Parents and Their Children

Four studies evaluating three teen parenting programs that serve adolescent parents and their children will be described in this section of the review of literature. Although, as already stated the results are limited by the small sample size, the authors of all four studies claim the comprehensive school-based teen parenting programs they investigated resulted in positive affects for adolescent parents and their children (Caulfield & Thompson, 1999; Fuscaldo, Kaye, & Philliber, 1998; Sadler, Swartz, & Ryan-Krause, 2003; Williams & Sadler, 2001).

The first study examined data for 52 teen parents enrolled in a comprehensive school-based teen parenting program to measure outcomes for the participating adolescent parents and their children (Williams & Sadler, 2001). Over a three-year period, all of the participating students experienced educational gains as demonstrated by promotion to the next grade with an increased grade point average or graduation from high school. Moreover, none of the students experienced a repeat childbirth during their school enrollment and 90% of the children were current with health examinations and immunizations.

The same program researched by Williams and Sadler (2001) was also studied by Sadler, Swartz, and Ryan-Krause (2003) to identify individual effects of the program’s
parenting support program and childcare center on adolescent parenting, the parent-child relationship, and the child’s development. These researchers found a higher quality of parent-child interactions among the study group when compared to a matched group of adolescent parents and their children. Additionally, the adolescent parents participating in this program reported confidence in their role as a parent and the children all appeared to have appropriate development. Sadler et al. concluded that a supportive and educational parenting program, along with quality on-site childcare might encourage effective parent-child interactions and help to diminish the effects of the disadvantages experienced by these young families.

A third study was completed with 16 parenting teens and specifically considered the effects of parenting classes on adolescent parents enrolled in a comprehensive teen parenting program (Caulfield & Thompson, 1999). The results from the Adult-Adolescent Parenting Inventory, administered as part of the research, indicated that the parenting adolescents who completed a parenting class in high school had scores signifying both a realistic awareness of child development and a high degree of empathy to their children’s needs. Caulfield and Thompson concluded that the parenting classes were instrumental in helping parenting teens enhance their ability to care for their children.

The fourth study was conducted by researchers Fuscaldo, Kaye, and Philliber (1998) to analyze another comprehensive teen parenting program that includes on-site childcare, parenting classes, a parent support group, life skills training, job skills training, tutoring, and mentoring. The study, using 31 adolescent mothers who participated in the program and a comparison group of 17 adolescent mothers who were not in the program,
was designed to evaluate the emotional stability and self-esteem, improved parenting, economic self-sufficiency, and repeat pregnancy as program outcomes. Results from this research found the adolescent mothers who participated in the program had a significantly greater improvement in their general self-esteem than the adolescent mothers in the control group. The evaluation of economic self-sufficiency determined the participating mothers were more likely to finish high school, to be employed, or pursue advanced education, and have a regular source of pediatric care for their children than the comparison mothers. Additionally, repeat pregnancies were significantly reduced for the participating mothers with 11% who gave birth to a second child within two years of their first child contrasted to 38% of the comparison mothers who had a second child within two years of their first.

The three school-based teen parenting programs outlined here share some commonalities. In addition to being school-based, the programs are all comprehensive in scope and strive for improved outcomes for both the adolescent parents and their children (Caulfield & Thompson, 1999; Fuscaldo et al., 1998; Sadler et al., 2003; Williams & Sadler, 2001). The next part of this review examines studies of school-based teen parenting programs that serve pregnant adolescents, either as their only target population (Barnet, Duggan, & Devoe, 2003; Meadows, Sadler, & Reitmeyer, 2000), or as part of a program that also serves parenting adolescents (Philliber et al., 2003; Weinman, Solomon, & Glass, 1999).
School-Based Teen Parent Programs that Serve Pregnant Adolescents

The largest of the studies reviewed in this chapter analyzes information from 3,194 teenagers enrolled in 53 programs serving pregnant and parenting adolescents in New Mexico from 1997 to 2000 (Philliber et al., 2003). The programs examined in this research were typically school-based and included a range of services for pregnant and parenting adolescents. Most of the programs incorporated prenatal education, life skills education, counseling, home visits, school lunch, homework help, childcare, case management, translation services, and employment training. Additional services provided by some of the programs included transportation, family planning, medical care for mother and baby, immunizations, and clinical prenatal care.

The researchers (Philliber et al., 2003) found that pregnant adolescents enrolled in teen parenting programs in New Mexico were more likely to receive early prenatal care when compared to pregnant adolescents who were not enrolled in a program. Philliber et al. suggest that this early entry into prenatal care may have influenced the rate of low birth weight infants born to participating adolescents. During the same time period as the study, the state rate of low birth weight infants born to women 15 to 19 years was 8.4%, and the national rate was 7.8%. The program participants, however, experienced a low birth weight rate of 6%. Additionally, Philliber et al. claim the teen parenting programs led to additional educational attainment, improved or continued employment, and low rates of repeat births among the majority of participating teenagers.

Researchers Barnet, Duggan, and Devoe (2003) compared access, comprehensiveness of care, and birth outcomes for adolescents receiving prenatal care in a school-based program with adolescents receiving care in a hospital-based program. As
a comprehensive program, the school-based model provided primary health care, prenatal, delivery, and postpartum care, family planning, case management, nutrition education, parenting education, and mental health services for the pregnant and parenting adolescents, as well as health care for the infants and children. The findings of this study of 390 adolescents discovered that adolescents receiving prenatal care through the hospital-based program were 3.75 times more likely to deliver a low birth weight infant when compared with the adolescents receiving prenatal through a school-based program.

An additional study conducted by nursing researchers Meadows, Sadler, and Reitmeyer (2000) also examined the outcomes of a school-based teen parenting program that was conducted as part of a public school system. This program provides pregnant students with a regular academic curriculum in addition to a healthy pregnancy curriculum including topics such as prenatal care, infant care, nutrition, and family planning. Students are also offered access to social services, counseling, outreach services, and part-time childcare once their baby is born. However, the childcare assistance is only temporary since a student returns to her original school the semester following her delivery. The researchers found that for the 1992-1993 academic school year, the adolescents attending the teen parenting program had a low birth weight rate of 5% compared to the city’s overall low birth weight rate of 11% for the same time. Additionally, the rate of low birth weight for the program during 1996-1997 was 9% compared to the overall rate for the city of 10.4%. Meadows et al. also reported adolescents who conceived in January through April were more likely to give birth to low birth weight infants than adolescents who conceived in May through December. This
difference was attributed to the fact that students who conceived in January through April spent less time in the program as a result of summer vacation.

Meadows et al. (2000) suggest that the improved birth outcomes are due, in part, to the nurturing and protective environment offered by the teen parenting program. Additionally, students receive information regarding the harmful effects of smoking, drinking, drugs, and medications during pregnancy, as well as, education concerning the value of proper nutrition during pregnancy. The researchers also point out that most of the students enrolled in this program receive breakfast and lunch, thus increasing the probability of appropriate weight gain during pregnancy. Finally, Meadows et al. suggest that in addition to the educational components, the emotional and psychological support offered by the program’s staff may further contribute to the positive birth outcomes experienced by the participating pregnant adolescents.

Authors Weinman, Solomon, and Glass (1999) also analyzed a school-based comprehensive teen parenting program. This program included 390 pregnant and parenting adolescents located at 10 schools. The program was intended to increase the use of referred services, increase academic skills, reduce school drop-out rates, increase the physical and mental health of the parenting adolescents and their children, and reduce the number of repeat pregnancies. The program offered 18 services, though only some were on-site, for pregnant and parenting adolescents. The services included pregnancy testing, maternity counseling, family planning, prenatal care, screening and treatment for sexually transmitted diseases (STDs), mental health counseling, home visitation, educational and vocational services, and information and counseling for nutritional services. The researchers determined that 88% of the pregnant and parenting adolescents
attended the referred services, 63.8% passed their grade in school, and 78% graduated. Also, of the 42 infants who were born during the year, none were born with low birth weight and the subsequent pregnancy rate was only 1%.

Health Care-Based Teen Parent Programs that Serve Pregnant Adolescents

Three studies are reviewed in this section. The first one describes a teen-focused clinic (Bensussen-Walls & Saewyc, 2001); the second a prenatal health education program initiated by a public health department (Covington, Peoples et al., 1998), and the third is a home visitation model (Flynn, 1999). Since these programs are health-based, they do not include the benefits of school attendance for the participants. However, the outcomes of these programs further emphasize the value of interventions that are designed specifically to address the challenges faced by pregnant and parenting adolescents.

Health care researchers Bensussen-Walls and Saewyc (2001) analyzed the outcomes from pregnant adolescents who received prenatal and postpartum care from comprehensive teen-centered prenatal care clinics and compared the results with adolescents who attended traditional adult-centered services. The researchers found that the teen-clinic participants missed fewer appointments, had higher birth weight infants, were more likely to have vaginal deliveries, and were more apt to be linked to supportive community services, when compared with the adolescents receiving traditional services. Additionally, postpartum visits revealed that of the teen-clinic participants 87.5% were using contraception, 62% were breastfeeding, and 63% had returned to school or employment. Bensussen-Walls and Saewyc suggest that a variety of physiological and
psychosocial outcomes can be improved for pregnant adolescents through clinical care that is teen-focused.

Covington, Peoples-Sheps, Buescher, Bennett, and Paul (1998) evaluated another health-care based prenatal education program for adolescents. This program was developed by the health department specifically to reduce the rate of prematurity and low birth weight infants born to adolescents and consisted of nine to ten group sessions led by a health educator. Education, emotional support and referrals to other services were provided to the participants. Results from this study show that, when compared with historical controls, the program participants were significantly less likely to have low birth weight infants and were less likely to have inadequate prenatal care. However, the outcome comparisons of participants to non-participants with access to similar resources (without a program), although slightly improved, did not reach statistical significance. The researchers suggested that perhaps this program focused on too many topics and would have found more significant results if the program were to focus on only a few topics known to be amenable to change and able to effect birth outcomes.

Another plan for a health-based prenatal education program for adolescents uses a home visitation model (Flynn, 1999). Flynn reviewed a home visitation program that was designed to promote positive health behaviors and improve birth outcomes for pregnant adolescents by providing social support, nurturing, child development information, and parenting education through home-visiting family support workers. The family support workers visited the participating pregnant adolescents weekly and through their roles as teacher, guide, advocate, and advisor, became mentors for the participants. Flynn reported that the rate of low birth weight infants born to participants (4.6%) was
lower than the local rate (13.5%). Additionally, the infant mortality rate was 0% among program participants compared with the local rate of 15.8%. The repeat pregnancy rate for the participants during the study period of two years was 13%. This also compares favorably with the national adolescent repeat pregnancy rate of 38%. Flynn concludes that an intervention based on the principles of mentorship through intensive home visitation may be effective in reducing rates of low birth weight and infant mortality for pregnant adolescents.

The remainder of this chapter will present recommendations that have been made to improve outcomes for pregnant adolescents through appropriate interventions. Finally, a review of teen parent programs in Florida will be presented.

Recommendations for School-Based Teen Parent Programs

Serving Pregnant Adolescents

As is described in Bronfenbrenner’s (1979) ecological theory, the mesosystem (connections between the various microsystems representing an individual’s immediate environment) can also be used as a model for intervention programs serving pregnant and parenting adolescents (Suner, Nakamura, & Caulfield, 2003). According to Suner, Nakamura, and Caulfield, a teen parent program designed with an ecological model perspective places a strong emphasis on the effective coordination between agencies and programs that serve pregnant and parenting adolescents. Suner et al. further state many intervention programs for pregnant and parenting adolescents provide educational and counseling services intended to reduce adolescent pregnancies, improve the likelihood of
successful pregnancies, provide parenting classes and support groups, and serve as a conduit for community services.

Authors Batten and Stowell (1996) compiled information on best practices for school-based programs for pregnant and parenting adolescents. Their guidelines provide precise details for the core areas of childcare, prenatal care, reproductive health services, health care for children, parenting and life skills education, case management, family support, educational programming, and father involvement. Specifically, Batten and Stowell recommend programs provide information about the effects of inappropriate health behavior practices and nutrition counseling to improve outcomes for pregnant adolescents.

Health researchers Koniak-Griffin and Turner-Pluta (2001) completed a review of literature on the obstetric, medical, and neonatal health risks associated with adolescent childbearing. They discovered successful intervention programs serve to diminish poor birth outcomes for adolescents by encouraging early and regular prenatal care, promoting healthy nutrition and adequate weight gain, and by supporting the elimination of high-risk behaviors. Additionally, Koniak-Griffin and Turner-Pluta maintain that pregnant adolescents have the same basic prenatal care needs as adult women, but experience increased risks of poor nutritional status, inadequate weight gain, and medical complications including anemia, human immunodeficiency virus (HIV), sexually transmitted infections (STIs), and urinary tract infections (UTIs). Therefore, adolescents often require interventions to address the following points:

- Nutrition
- High-risk behaviors, e.g., substance use
- HIV/STI assessment and prevention
Other researchers agree that pregnant adolescents have definite needs that should be addressed through interventions to optimize birth outcomes (Brinberg & Axelson, 2002; Hunt et al., 2002; Roth et al., 1998; Stevens-Simon et al., 2002). For example, specific topics that could have positive effects, especially on the incidence of low birth weight, include proper nutrition and adequate weight gain (Brinberg & Axelson; Hunt et al.; Ramakrishnan, 2004; Stevens-Simon et al.) and the adverse effects of the use of alcohol, tobacco, and other drug use on fetal growth and development (Roth et al.). Encouraging smoking cessation, physical fitness, and early prenatal care are issues that may contribute to reducing the risk of adolescent mothers having low birth weight infants and could be incorporated into a school-based curriculum (Roth et al., 1998).

Furthermore, research has shown pregnant high school students often have a sense of optimism and confidence in their abilities to parent and complete their career goals (Fessler, 2003; Schultz, 2001; Spear, 2001). Thus, Spear suggests capitalizing on these attitudes to help students graduate from high school, build a sense of independence, and reduce the risk for repeat pregnancies.

When addressing the design of programs to serve pregnant and parenting adolescents, researchers have pointed out the difficulty faced by these young mothers attempting to transition into adulthood and parenthood simultaneously (Sadler, et al.,
2003). Consequently, authors stress that in addition to the services provided, it is vital for the school’s administration and staff to support the teen parenting program, and demonstrate sensitivity to the developmental needs of pregnant and parenting adolescents (Sadler et al.; Weinman et al., 1999). As Collins, Lemon and Street (2000) also assert programs cannot successfully alter outcomes unless the program participants continue in the program for an adequate period of time.

The Child Welfare League of America (2000) concurs with researchers regarding necessary components of a teen parent program (Batten & Stowell, 1996; Brinberg & Axelson, 2002; Hunt et al., 2002; Koniak-Griffin & Turner-Pluta, 2001; Stevens-Simon et al., 2002; Suner et al., 2003). The Child Welfare League’s Legislative Agenda states that the following action is required:

Ensure a full spectrum of programs and services to young pregnant and parenting women to ensure their well-being and that of their children. Allow these young women to maximize their options in life by developing the skills required for economic independence, self-sufficiency, and long-term family stability. Fund programs that include child care, education, health care, counseling, nutrition, and parenting education. (p. 4)

Florida’s design and implementation of teen parent programs has followed many of the recommendations suggested by researchers (Batten & Stowell, 1996; Brinberg & Axelson, 2002; Hunt et al., 2002; Koniak-Griffin & Turner-Pluta, 2001; Stevens-Simon et al., 2002; Suner et al., 2003) and the Child Welfare League (2000). The final section in this chapter will describe Florida’s requirements for the education of pregnant and parenting adolescents.
Teen Parent Programs in Florida

Nationally, many school districts provide teen parenting programs to help pregnant and parenting teens graduate from high school (Children’s Defense Fund, 2002). Florida, however, is the only state that entitles all teen parents, regardless of their eligibility for public assistance, the opportunity to enroll in a comprehensive program (Stephens et al., 1999; Children’s Defense Fund) and was the first state to provide public education funds, other than grants, specifically for childcare for adolescent parents (Florida Department of Education, 1997).

The Florida Legislature enacted the Dropout Prevention Act in 1986 to encourage district school boards to establish comprehensive dropout prevention programs that included Teenage Parent Programs (Florida Department of Education, 1997). By 1989, Teenage Parent Programs (TAP) were added as an entitlement and included funding for the children of adolescent parents so school districts could add childcare, health services, and social services. In 1994, the Florida Legislature amended the Dropout Prevention Act and required TAP in all the state’s 67 school districts (Florida Department of Education, 1997).

The Florida Statute that addresses teenage parent programs specifies a comprehensive program that is multilevel and multidisciplinary in nature and must include an academic course of study leading to a high school diploma (Florida Department of Education, 1997).

Teenage Parent Programs:
(1) Each district school board shall maintain a teenage parent program.
(2) “Teenage parent programs” means educational programs designed to provide a specialized curriculum to meet the needs of students who are pregnant or students who are mothers or fathers and the children of the students.
(3) (a) The program shall provide pregnant students or students who are parents and the children of these students with a comprehensive teenage parent program [italics added]. The program shall provide pregnant students or students who are parents with the option of participating in regular classroom activities or enrolling in a special program designed to meet their needs pursuant to s. 1003.21. Students participating in teenage parent programs shall be exempt from minimum attendance requirements for absences related to pregnancy or parenting, but shall be required to make up work missed due to absence.

(b) The curriculum shall include instruction in such topics as prenatal and postnatal health care, parenting skills, benefits of sexual abstinence, and consequences of subsequent pregnancies [italics added]. Parenting skills should include instruction in the stages of child growth and development, methods for aiding in the intellectual, language, physical, and social development of children, and guidance on constructive play activities.

(c) Provision for necessary child care, health care, social services, parent education, and transportation shall be ancillary service components of teenage parent programs. Ancillary services may be provided through the coordination of existing programs and services and through joint agreements between district school boards and local school readiness coalitions or other appropriate public and private providers. (Teenage Parent Programs, 2002)

During the 2000-2001 school year, 7,300 pregnant and parenting adolescents were served in Florida’s Teenage Parenting Programs (Florida Office of Program Policy Analysis and Government Accountability, 2002). Additionally, childcare and health services were provided to 6,043 children of adolescent parents. The number of students and children participating during the 2001-2002 school year decreased somewhat with 6,539 pregnant and parenting adolescents and 5,511 children served through the Teenage Parenting Programs (Florida Office of Program Policy Analysis and Government Accountability, 2003).

Teenage Parenting Programs in Florida are required to create definite outcome objectives and submit an annual report documenting their progress. Evaluation is based on the following criteria: “1) Remaining in school or earning a high school diploma, 2)
Improving parenting skills, 3) Giving birth to babies weighing 5.5 pounds or greater.” (Florida Department of Education, 1997).

Summary

The review of literature on teenage parenting has shown that although the adolescent birth rate has decreased in recent years (Martin et al., 2003), teenage pregnancy and parenting is still considered by researchers (Alan Guttmacher Institute, 1999; American Academy of Pediatrics, 2001; Chandra et al., 2002; Cowden & Funkhouser, 2001; Fessler, 2003; Maynard, 1996; Phipps et al., 2002; Phipps & Sowers, 2002; Rauh et al., 2001; Roth et al., 1998; Southern Institute on Children and Families, 2002; Ventura et al., 1999; Wertheimer et al., 2001) and the general public (Manlove & Carrie, 1996; Vinovskis, 2003) to have numerous negative outcomes.

Research was presented which examined an analysis of issues surrounding adolescent parenting and included review of the landmark study, *Kids Having Kids: Economic Costs and Social Consequences of Teen Pregnancy* (Maynard, 1996). However, authors were also cited who are not in agreement with the concept of universal negative consequences resulting from adolescent pregnancy (Fessler, 2003; Geronimus et al., 1994; Hoffman, 1998; Massat, 1995; L. Sadler, personal communication, January 13, 2005; Schultz, 2001).

The outcomes for children born to adolescent parents were considered, especially the harmful effects of low birth weight (Becker & Teutsch, 2000; Boardman et al., 2002; Centers for Disease Control and Prevention, 2002; Chandra et al., 2002; DuPlessis et al., 1997; Fessler, 2003; Martin et al., 2002; Maynard, 1996; MacDorman et al., 2002;
Paneth, 1995; Papillo et al., 2002; Phipps et al., 2002; Rauh et al., 2001; Roth et al., 1998; Ruch-Ross & Jones, 1992; Southern Institute on Children and Families, 2002; Ventura et al., 1999; Weitzel & Shockley, 2000; Wertheimer et al., 2001; White & Wang, 2000) and low Apgar scores (Casey et al., 2001; Hegyi et al., 1998; Martin et al., 2003; Moster et al., 2002; Moster et al., 2001; Thorngren-Jerneck & Herbst, 2001; Hubner & Juarez, 2002). Research studies demonstrating the harmful effects of smoking during pregnancy, specifically on birth weight were also reviewed (MacDorman et al., 2002; Martin et al., 2003; Salihu et al., 2003; Taylor & Sanderson, 1995; U.S. Department of Health and Human Services, 2004, Ventura et al., 2003).

A summary of research examining outcomes of teen parent programs (Barnet et al., 2003; Bensussen-Walls & Saewyc, 2001; Caulfield & Thompson, 1999; Covington et al., 1998; Flynn, 1999; Fuscaldo et al., 1998; Meadows et al., 2000; Philliber et al., 2003; Sadler et al., 2003; Weinman et al., 1999; Williams & Sadler, 2001), challenges associated with studies of teen parent programs, and recommendations for the design of programs serving pregnant adolescents was presented (Batten & Stowell, 1996; Brinberg & Axelson, 2002; Child Welfare League of America, 2000; Hunt et al., 2002; Koniak-Griffin & Turner-Pluta, 2001; Stevens-Simon et al., 2002; Suner et al., 2003). Finally, a description of the role Florida has played in the development of teen parent programs was provided (Children’s Defense Fund, 2002; Florida Department of Education, 1997; Florida Office of Program Policy Analysis and Government Accountability, 2003; Teenage Parent Programs, 2002; Stephens et al., 1999).

The next chapter of this dissertation will continue to examine the relationship of teen parent programs and low birth weight and will identify components of a healthy
pregnancy curriculum that could be the most helpful for pregnant adolescents by addressing specific research questions.
CHAPTER 3
METHODOLOGY

The present study was designed to determine if there are differences in birth weight of infants, tobacco use during pregnancy, and Apgar scores of infants between pregnant adolescents who successfully completed a healthy pregnancy curriculum and those who did not and to further examine the adolescent mothers’ perceptions of the major concepts included in the Healthy Pregnancy Curriculum. This chapter provides a description of the research design and the methods that were used to collect and analyze the data.

Research Questions

The research questions presented here use a definition of an adolescent as less than 18 years old. Success in the healthy pregnancy curriculum is defined as a grade of A, B, or C for the nine-week course taken during the first or second trimester of pregnancy.

1. Is there a difference in the rate of low birth weight infants between adolescents who have successfully completed a healthy pregnancy curriculum and those who have not?

2. Is there a difference between the self-reported tobacco use during pregnancy between adolescents who have successfully completed a healthy pregnancy curriculum and those who have not?
3. Is there a difference in the Apgar scores between adolescents who have successfully completed a healthy pregnancy curriculum and those who have not?

4. Which components of the state required curriculum do participants of the healthy pregnancy curriculum perceive as the most important and the most helpful?

Quantitative Research Design

The first section of the current study sought to answer research questions one, two and three by looking at retrospective data to determine if there are differences in birth weight of infants, tobacco use during pregnancy, and Apgar scores of infants between pregnant adolescents who successfully completed a healthy pregnancy curriculum and those who did not.

Quantitative Study Population

The population for the first part of the present study addressing research questions one, two, and three consisted of all adolescents who gave birth to a single child in one South Florida county during the period of time from October 1999 to November 2003. Adolescents who gave birth during this interval would have been eligible to enroll in the healthy pregnancy curriculum at the H.O.P.E. program during their first or second trimester of pregnancy during the four academic years of 1999/2000 to 2002/2003. There were 199 adolescents in this county who gave birth from October 1999 to November 2003.
Two samples were selected from the quantitative study population. The first sample was identified as participants and included the 50 adolescents from the population who successfully completed the healthy pregnancy curriculum during their first or second trimester of pregnancy with a grade of A, B, or C. The second sample was identified as non-participants and was comprised of the 149 adolescents who had given birth in the same county from October 1999 to November 2003 and who did not successfully complete the healthy pregnancy curriculum or who did not enroll in the H.O.P.E. teen parent program.

Quantitative Data Collection

The retrospective data on adolescent births from 1999 to 2003 were obtained from the Office Automation Analyst at the Charlotte/DeSoto County Health Department. Data indicating the age of the mother, the infant’s date of birth, the birth weight of the infant, self-reported tobacco use during pregnancy, and the Apgar scores for the infant at one-minute and five-minutes were provided to the researcher on Excel Spreadsheet and Word Documents.

The school nurse of the H.O.P.E. teen parent program made available a list of all students who had given birth during the same four years. Students from the H.O.P.E. teen parent program who had given birth were identified on the list of births from the Office Automation Analyst at the Charlotte/DeSoto County Health Department by matching the date of birth, the mother’s age at the time of delivery, and the infant’s birth weight. School records of The Academy indicated which students successfully
completed the healthy pregnancy curriculum during their first or second trimester of pregnancy with a grade of A, B, or C.

Quantitative Data Analysis

Once the 50 participants from the H.O.P.E. teen parent program were identified on the list of births supplied by the Charlotte/DeSoto County Health Department, birth data were entered into the statistical analysis software Statistical Package for the Social Sciences (SPSS) Version 11.0 for Windows (SPSS, 2001). Each adolescent was identified as either a participant of the H.O.P.E. teen parent program or a non-participant and data indicating the age of the mother, the infant’s date of birth, birth weight, Apgar score at one minute, Apgar score at two minutes, and the self-reported tobacco use during pregnancy were logged for each of the 199 births.

Qualitative Research Design

The second section addressed research question four by examining perceptions of the adolescent mothers regarding the ten major concepts included in the State of Florida required curriculum framework for the Healthy Pregnancy Curriculum (see Appendix A) through the use of a questionnaire, focus group discussions, and follow-up interviews.

Qualitative Population

A questionnaire, focus group discussions, and follow-up interviews were conducted during November 2004 with a convenience sample of seven former students.
from the adolescents described above as the Quantitative Study Population. This purposive sample was limited to students who successfully completed the healthy pregnancy curriculum and were available to the researcher.

The former students who were over the age of 18 years by March 2004 and successfully completed the healthy pregnancy curriculum during academic years of 2001/2002 to 2002/2003 were contacted to participate in the qualitative part of the study. Additional inclusion criteria for this sample included adolescents who gave birth to a live infant, had a singleton birth, retained custody of the child, were not currently pregnant, and had not given birth to a second child.

Instruments

The questions for the questionnaire and the focus group discussions were based on the ten major concepts included in the state of Florida’s required curriculum framework for the healthy pregnancy curriculum (see Appendix A for the Florida Department of Education’s curriculum framework). The concepts include the following:

- Human reproduction
- Physical changes during pregnancy
- The birth process
- Nutrition
- Health-care practices
- Environmental effects of the unborn baby
- Fetal growth and development
• Common sexually transmitted disease
• Decision making
• Family planning

Referring to the ten major concepts, the questionnaire (see Appendix B) addressed three primary questions. The first question was: How important do you think each of the following topics is for the Healthy Pregnancy Curriculum? The following Likert scale choices were provided for each of the ten topics:

• Not at all important
• A little bit important
• Somewhat important
• Extremely important

The second question was: How much did you learn in the Healthy Pregnancy Course about each of the following topics? The following Likert scale options were given for each of the ten topics:

• Learned nothing
• Learned a little
• Learned quite a bit
• Learned a lot

The third question was: How helpful was the information you learned in each of the following areas? The following Likert scale choices were given for each of the ten topics:

• Not helpful at all
• A little bit helpful
• Very helpful

• Extremely helpful

Also, space was provided on the questionnaires for participants to include comments by stating, “Your help is appreciated. If you would like to share additional information, please use the space below. Thank you!”

The focus group discussions were guided by two questions (see Appendix C). The first question, “Did the information from the healthy pregnancy class on the following topics change your behaviors and/or attitudes during pregnancy? If yes, how did your behavior change?” The ten major concepts were then discussed one at a time.

The second question asked of the focus group participants was, “What improvements would you suggest for the H.O.P.E. Teen Parent Program?”

The follow-up phone interviews (see Appendix D) were conducted two or three days following the focus group and asked the following two questions: Is there anything else you would like to share? Do you have any other thoughts regarding the healthy pregnancy curriculum, either positive or negative?

**Qualitative Data Collection**

Twenty-four former students were identified as potentially eligible for participation in the focus groups, questionnaire, and follow-up interviews. Six students of the 24 were either currently pregnant, or had given birth to a second child and, therefore, were not eligible for participation. One student was disqualified because she had not retained custody of the child. Of the remaining former students, three had moved
out of state and the researcher was unable to contact seven of these women. Therefore, seven former students were available to participate in the qualitative part of the present study.

On August 13, 2004 Charlotte County, Florida suffered severe effects from Hurricane Charley. An estimated 15,000 homes were destroyed and another 40,000 were damaged (Reddy, 2004, November 30). Charlotte County’s population of 141,627 represents 63,793 households and according to the Federal Emergency Management Agency (FEMA), 66% (42,608) of those households requested federal housing assistance following the storm (Reddy, 2004, October 17). Therefore, many individuals and entire families were forced to move out of the county (Tierney, 2004), which resulted in considerable difficulties locating and contacting former students.

During September and October 2004, many attempts were made to locate the eligible former students. School records were searched to find addresses and phone numbers for the students and any emergency contacts they had listed. The director of the childcare program also searched her records for additional contact information. The researcher further conducted numerous searches on the World Wide Web using online directories such as AnyWho, InfoSpace, Dogpile, Whitepages.com, Yahoo! People Search, WhoWhere, SwitchBoard and Web Detective. Additional searches were conducted online using the Charlotte County and Sarasota County property tax web sites. Further attempts were made to contact all known employers or friends of the former students. Eight-one phone calls were made using 64 phone numbers in an effort to locate the eligible former students. After exhausting every available lead, seven former students
were not found. However, seven former students were located and participated in the questionnaire, focus group discussions, and follow-up interviews.

During November 2004, two focus groups, the first consisting of three participants, and the second of four participants met and were asked to complete questionnaires and to take part in a discussion regarding their perceived importance and helpfulness of various healthy pregnancy curricular components. Because the researcher was also the teacher for the healthy pregnancy curriculum, an administrator and the childcare director from the school administered the questionnaire and conducted the focus group discussions to provide a more neutral atmosphere and to encourage honest responses.

The participants and the moderators met in a classroom of The Academy in the afternoon after school was dismissed for the day. The women were seated at tables in a circle. Following a brief welcome by the researcher, the researcher left the room and the moderators explained the informed consent and obtained the necessary signatures. The moderators then conducted administration of the questionnaire and the focus group discussions.

The follow-up interviews of the focus group participants were conducted by telephone two to three days after the focus group sessions had taken place. The purpose of the follow-up interviews was to allow participants to contribute further information they may have considered after the focus group session or add comments they perhaps did not feel comfortable expressing in the group setting.
Qualitative Data Analysis

The entire proceedings of the focus group discussions were audio tape-recorded and transcribed verbatim by the researcher to facilitate coding of the responses and analysis of frequencies. Each response from the focus groups was coded as indicating a change in attitude or behavior and was then classified according to the relevant curriculum topic it represented. All responses are described in Chapter 4 of this study. The 30 Likert scale replies from the questionnaire were entered into SPSS for an analysis of frequencies. Analyses of the quantitative and qualitative data are provided in the next chapter of this dissertation.
CHAPTER 4
DATA ANALYSIS

The present study was designed to determine if there are differences in birth weight of infants, tobacco use during pregnancy, and Apgar scores of infants between pregnant adolescents who successfully complete a healthy pregnancy curriculum and those who do not and to further examine the adolescent mothers’ perceptions of the major concepts included in the Healthy Pregnancy Curriculum. Data were collected through records provided by the Health Department Office of Vital Statistics and the school nurse of the H.O.P.E. teen parent program. Additional data were assembled from a questionnaire, focus group discussions, and follow-up interviews of former students who had successfully completed the healthy pregnancy curriculum. This chapter presents analyses of those data.

Research Question One

Is there a difference in the rate of low birth weight infants between adolescents who have successfully completed a healthy pregnancy curriculum and those who have not?

Birth weights of the 199 infants born to adolescent mothers from 1999 to 2003 were analyzed using the statistics software, Statistical Package for the Social Science
Version 11.0 for Windows (SPSS, 2001). An independent t-test revealed that the mean weight of infants born to adolescent mothers who were participants of the healthy pregnancy curriculum (N = 50) of 3,245 grams was only slightly larger that the mean for non-participants (n = 149) of 3,165 grams and was not statistically significant (t = .74, df = 197, p = .46).

Research Question Two

Is there a difference between the self-reported tobacco use during pregnancy in adolescents who have successfully completed a healthy pregnancy curriculum and those who have not?

A chi-square test and cross-tabulations were processed to determine significance, if any, in the difference in tobacco use for the two groups. Of the program participants (n = 50), seven reported using tobacco during their pregnancies, which is somewhat smaller than the expected count of 9.8 (residual value = -2.8). Thirty-two non-participants (n = 149) reported tobacco use during their pregnancies. Thus, the reported tobacco use for non-participants was slightly higher than the expected count of 29.2 (residual value = 2.8). However, the Pearson chi-square value of 1.328 (df = 1, p = .249) was not statistically significant.

Research Question Three

Is there a difference in the Apgar scores between adolescents who have successfully completed a healthy pregnancy curriculum and those who have not?
An independent t-test showed the mean of infants born to adolescent mothers with low Apgar scores (less than three) at one-minute and who were also participants (n = 50) of 7.8 was slightly larger than the mean for non-participants (n = 149) of 7.98 and was not statistically significant (t = -.726, df = 197, p = .648). Again, an independent t-test was used to determine if there was a statistically significant difference for the five-minute Apgar scores between participants and non-participants. The mean low Apgar score (less than six) at five-minutes for the participants (n = 49, one participant did not have the five-minute Apgar score recorded) was 8.88 and was almost identical to the mean for the non-participants (n = 149) of 8.82 (t = -.796, df = 190, p = .126). These results were not statistically significant.

Research Question Four

Which components of the state required curriculum do participants of the healthy pregnancy curriculum perceive as the most important and the most helpful?

The data used to examine this question were collected using the questionnaires, focus group discussions, and follow-up interviews. The data for the thirty items from the questionnaires were entered in SPSS for an analysis of frequencies. The data from the focus group discussions and follow-up interviews were recorded and transcribed. These data were analyzed by using coding categories.
**Questionnaires**

The first question asked the participants (n = 7), “How important do you think each of the following topics is for the Healthy Pregnancy Curriculum?” The data for the Likert scale responses were entered in SPSS according to the following: 1 = Not at all important, 2 = A little bit important, 3 = Somewhat important, 4 = Extremely important. Table 6 displays the Likert scale responses for the first question. Participants overwhelming responded that the ten topics included in the healthy pregnancy curriculum were either “somewhat important” or “very important.”

All the participants (100%) indicated that the topics of The Birth Process, Nutrition, Decision Making, and Family Planning were “extremely important” components of the healthy pregnancy curriculum. The topics of Physical Changes During Pregnancy, Health-Care Practices, and Fetal Growth and Development were selected as “extremely important” by 86% of the former students. Environmental Effects on the Unborn Baby was indicated as “extremely important” by 71% of the participants. Fifty-seven percent answered that Commonly Sexually Transmitted Diseases was an “extremely important” topic and 43% reported Human Reproduction was “extremely important.”
Table 6

Likert scale responses, Question one, “How important do you think each of the following topics is for the Healthy Pregnancy Curriculum?”

<table>
<thead>
<tr>
<th>Topic</th>
<th>Not at all important</th>
<th>A little bit important</th>
<th>Somewhat important</th>
<th>Extremely important</th>
</tr>
</thead>
<tbody>
<tr>
<td>Human Reproduction</td>
<td>4 57</td>
<td>3 43</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Physical Changes During Pregnancy</td>
<td>1 14</td>
<td>6 86</td>
<td></td>
<td></td>
</tr>
<tr>
<td>The Birth Process</td>
<td></td>
<td></td>
<td>7 100</td>
<td></td>
</tr>
<tr>
<td>Nutrition</td>
<td></td>
<td></td>
<td></td>
<td>7 100</td>
</tr>
<tr>
<td>Health-Care Practices</td>
<td>1 14</td>
<td>6 86</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Environmental Effects on the Unborn Baby</td>
<td>2 29</td>
<td>5 71</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fetal Growth &amp; Development</td>
<td>1 14</td>
<td>6 86</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Common Sexually Transmitted Diseases</td>
<td>3 43</td>
<td>4 57</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Decision Making</td>
<td></td>
<td></td>
<td></td>
<td>7 100</td>
</tr>
<tr>
<td>Family Planning</td>
<td></td>
<td></td>
<td></td>
<td>7 100</td>
</tr>
</tbody>
</table>

The second question asked the participants (n = 7), “How much did you learn in the Healthy Pregnancy Course about each of the following topics?” The data for the Likert scale responses were entered in SPSS according to the following: 1 = Learned Nothing, 2 = Learned a little, 3 = Learned quite a bit, 4 = Learned a lot. Table 7 displays the Likert scale responses for the second question. All participants responded they either “learned quite a bit” or “learned a lot” for seven of the ten topics.
Eighty-six percent of the participants answered that they “learned a lot” for the topics of The Birth Process and Fetal Growth and Development. The topics of Physical Changes During Pregnancy and Environmental Effects on the Unborn Baby each had 71% of the respondents indicating that they “learned a lot.” Nutrition was a topic 57% felt that they “learned a lot” about and 43% of respondents “learned a lot” concerning the topics of Decision Making, Family Planning, and Health-Care Practices. Only 29% of the participants indicated that they “learned a lot” and another 29% responded that they “learned nothing” about Common Sexually Transmitted Diseases. All seven former students (100%) indicated that they “learned quite a bit” regarding the topic of Human Reproduction.
### Table 7

Likert scale responses, Question two, “How much did you learn in the Healthy Pregnancy Course about each of the following topics?”

<table>
<thead>
<tr>
<th>Topic</th>
<th>Learned nothing</th>
<th>Learned a little</th>
<th>Learned quite a bit</th>
<th>Learned a lot</th>
</tr>
</thead>
<tbody>
<tr>
<td>Human Reproduction</td>
<td>7</td>
<td>100</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Physical Changes During Pregnancy</td>
<td>2</td>
<td>29</td>
<td>5</td>
<td>71</td>
</tr>
<tr>
<td>The Birth Process</td>
<td>1</td>
<td>14</td>
<td>6</td>
<td>86</td>
</tr>
<tr>
<td>Nutrition</td>
<td>1</td>
<td>14</td>
<td>2</td>
<td>29</td>
</tr>
<tr>
<td>Health-Care Practices</td>
<td>4</td>
<td>57</td>
<td>3</td>
<td>43</td>
</tr>
<tr>
<td>Environmental Effects on the Unborn Baby</td>
<td>3</td>
<td>29</td>
<td>5</td>
<td>71</td>
</tr>
<tr>
<td>Fetal Growth &amp; Development</td>
<td>1</td>
<td>14</td>
<td>6</td>
<td>86</td>
</tr>
<tr>
<td>Common Sexually Transmitted Diseases</td>
<td>2</td>
<td>29</td>
<td>1</td>
<td>14</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>29</td>
<td>2</td>
<td>29</td>
</tr>
<tr>
<td>Decision Making</td>
<td>4</td>
<td>57</td>
<td>3</td>
<td>43</td>
</tr>
<tr>
<td>Family Planning</td>
<td>4</td>
<td>57</td>
<td>3</td>
<td>43</td>
</tr>
</tbody>
</table>

The third question asked the participants (n = 7), “How helpful was the information you learned in each of the following areas?” The data for the Likert scale responses were entered in SPSS according to the following: 1 = Not helpful at all, 2 = A little bit helpful, 3 = Very helpful, 4 = Extremely helpful. Table 8 displays the Likert scale responses for the third question.

All participants responded that the information they learned was either “very helpful” or “extremely helpful” for the topics of Physical Changes During Pregnancy,
The Birth Process, Nutrition, Fetal Growth and Development, Decision Making, and Family Planning. The information learned in the areas of Physical Changes During Pregnancy, The Birth Process, Environmental Effects on the Unborn Baby, Decision Making, and Family Planning were indicated as “very helpful” by 71% of the respondents. Fifty-seven percent of the former students replied that the information they learned in the areas of Nutrition and Fetal Growth and Development was “very helpful.” Health-Care Practices was an area 43% felt was “very helpful.” Twenty-nine percent indicated that information regarding Human Reproduction was “very helpful” and only 14% described the area of Common Sexually Transmitted Diseases as “very helpful.”
Table 8

Likert scale responses, Question three, “How helpful was the information you learned in each of the following areas?”

<table>
<thead>
<tr>
<th>Area</th>
<th>Not helpful at all</th>
<th>A little bit helpful</th>
<th>Very helpful</th>
<th>Extremely helpful</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>%</td>
<td>N</td>
<td>%</td>
</tr>
<tr>
<td>Human Reproduction</td>
<td>2</td>
<td>29</td>
<td>3</td>
<td>43</td>
</tr>
<tr>
<td>Physical Changes During Pregnancy</td>
<td>2</td>
<td>29</td>
<td>5</td>
<td>71</td>
</tr>
<tr>
<td>The Birth Process</td>
<td>2</td>
<td>29</td>
<td>5</td>
<td>71</td>
</tr>
<tr>
<td>Nutrition</td>
<td>3</td>
<td>43</td>
<td>4</td>
<td>57</td>
</tr>
<tr>
<td>Health-Care Practices</td>
<td>1</td>
<td>14</td>
<td>3</td>
<td>43</td>
</tr>
<tr>
<td>Environmental Effects on the Unborn Baby</td>
<td>1</td>
<td>14</td>
<td>1</td>
<td>14</td>
</tr>
<tr>
<td>Fetal Growth &amp; Development</td>
<td>3</td>
<td>43</td>
<td>4</td>
<td>57</td>
</tr>
<tr>
<td>Common Sexually Transmitted Diseases</td>
<td>1</td>
<td>14</td>
<td>4</td>
<td>57</td>
</tr>
<tr>
<td>Decision Making</td>
<td>2</td>
<td>29</td>
<td>5</td>
<td>71</td>
</tr>
<tr>
<td>Family Planning</td>
<td>2</td>
<td>29</td>
<td>5</td>
<td>71</td>
</tr>
</tbody>
</table>

The questionnaires also included a space for participants to write down additional information. The question read, “Your help is appreciated. If you would like to share additional information, please use the space below. Thank you!” Two participants wrote comments in the space provided. One woman wrote, “The curriculum that was taught was extremely helpful to me.” The second woman remarked, “If it wasn’t for this school and its program I would not have been able to graduate. Charlotte County girls are very lucky to have this chance. THANK YOU!”
Focus Group Discussions

The focus group discussions were based on two questions. This first question was, “Did the information in the Healthy Pregnancy class on the following topics change your behaviors and/or attitudes during pregnancy? If yes, how did your behavior change? ’ The moderator then read off each of the ten topics allowing time for the participants to respond before introducing the next topic. The second question was, “What improvements do you suggest for the H.O.P.E. teen parent program?”

The transcripts from the two focus groups were reviewed and coded into categories based upon content analysis. Responses were coded for the questions, “Did the information from the healthy pregnancy class on the following topics change your behaviors and/or attitudes during pregnancy? If yes, how did your behavior change?” and “What improvements would you suggest for the H.O.P.E. teen parent program?” Table 9 displays the number of responses for the first focus group question (n=7). Since some participants answered the questions with more than one response, the total number of responses exceeds the number of participants for some topics.
Table 9
Focus group responses, Question one, “Did the information from the healthy pregnancy class on the following topics change your behaviors and/or attitudes during pregnancy? If yes, how did your behavior change?”

<table>
<thead>
<tr>
<th>Topic</th>
<th>Change attitudes</th>
<th>Change behaviors</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Human Reproduction</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>Physical Changes During Pregnancy</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>The Birth Process</td>
<td>6</td>
<td>1</td>
</tr>
<tr>
<td>Nutrition</td>
<td>5</td>
<td>2</td>
</tr>
<tr>
<td>Health-Care Practices</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Environmental Effects on the Unborn Baby</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>Fetal Growth &amp; Development</td>
<td>4</td>
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<td>Common Sexually Transmitted Diseases</td>
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<tr>
<td>Decision Making</td>
<td>6</td>
<td>1</td>
</tr>
<tr>
<td>Family Planning</td>
<td>4</td>
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</tbody>
</table>

Note. Some women responded more than once to each topic.

Between three and six of the participants indicated that their attitudes were changed (43% to 86%) in all ten of the curriculum areas. Five of the ten topics were also indicated as areas in which the information from the healthy pregnancy class changed their behaviors (29%-57%).

The first topic addressed was Human Reproduction. Fifty-seven percent responded that the class resulted in a change in their attitudes and 87% also indicated a
change in their behaviors. Participants most often stated that due to the information they learned in the healthy pregnancy curriculum, they knew what to expect during pregnancy. One former student responded that the curriculum, “really, in a way, changed by outlook, because I felt that, if tomorrow I was to get pregnant again it would not bother me. It is very informational on how I would take care of myself differently this time than last.” Another participant replied that the curriculum, “mapped out everything to a ‘T.’ Exactly how it is and what you should know, how it is going to change when you’re pregnant or if it’s not going to change and what you should expect. And to keep yourself healthy and if it’s not healthy, or if it’s deteriorating, how to understand exactly what’s going on with your body.”

The second topic discussed was Physical Changes During Pregnancy. Fifty-seven percent of the participants remarked their attitudes had changed due to the curriculum. Two former students mentioned the benefits of participating in the program with other pregnant students. One explained, “When you’re pregnant without this program I would be thinking about how my body was growing while I was pregnant. But, once you’re in this program you can actually see it. If you’re looking at someone else and they’re six months pregnant, you can see the difference between two months pregnant and six months pregnant and as time goes on how it changes.” A second participant stated, “The way you look before you’re pregnant and after is a big difference. Like, not every girl who’s pregnant saw that. ‘My stomach is getting big! I’ve got stretch marks! And my face and feet are really swollen!’ We learned that it was normal and what happens to everyone who is pregnant.”
Additional comments regarding physical changes during pregnancy focused on the participants own experiences regarding physical changes during pregnancy. One woman explained how, “My body’s just not the same as it was before. We read the material and seen the changes ahead of time.” Two other participants mentioned that the physical changes they experienced were greater than they were expecting. One said, “I gained a lot more weight than what I thought was supposed to happen.” The other participant explained that “The changes, in like, my breast size and stretch marks and the way I feel about myself now, and my hip structure and my body structure is completely different from what I thought it would be.”

The third topic was regarding the Birth Process. Although no participants stated that they changed their behaviors, 86% indicated that their attitudes changed due to the information they learned in the class. Five participants stated that they were prepared and knew what to expect during the birth process from the information they learned in the healthy pregnancy curriculum.

One woman explained how she was emotional and scared watching the videos showing the birth process. “I cried watching the videos. Is that really going to happen to me? I remember one time sitting there crying and the other girls were like, ‘Are you OK?’ ‘Yes, I’m fine, but that’s not going to happen to me, right?’ ‘Yes it is. Whether you have a C-section or give birth natural, it’s going to happen.’” Another participant summed up her attitude by saying, “I think it was a lot better than not knowing what to expect. Going into the hospital not knowing what’s going to happen to you. It was better watching the videos and saying, ‘This is going to happen but at least I know how to deal with it now.’”
Two participants responded that they were not prepared. One replied that she thought she would have a long labor because this was her first child. Instead, she explained that, “I wasn’t prepared for it at all because it came really fast and hard.” She further detailed her experience, “I was in labor for four hours, my water broke and I was already dilated when I got to the hospital so it hit me hard and fast. I was totally not ready for it to come that fast.”

The second woman who answered that she was not prepared for the birth process had her labor induced. She explained what happened and how she expects her experience to be completely different with her next pregnancy. “I was induced from nothing, I had not dilated, my water had not broken, and I got six hours of hard labor from being induced instead of six hours of natural labor.”

The fourth topic was Nutrition. Seventy-one percent said they experienced a change in attitudes and 43% indicated a change in behaviors. Five participants responded that their knowledge and attitudes changed due to the health pregnancy curriculum and three elaborated on how their nutrition-related behaviors were altered. One former student replied that the curriculum, “It helped me to start eating right. I used to eat just like chips for dinner. I never used to eat right. Than I started reading the Nutrition Notebook and I started making those diet things, and then I starting going to Olive Garden and Red Lobster. So it helped learning to eat right for the baby and to have a healthy baby.” A second participant answered that, “It changed my behavior because then I knew that I was doing the things I was supposed to do and not supposed to do and things I was supposed to eat and not to eat. And it really helped me a lot. And it changed me.”
Two women further explained how the curriculum also influenced their dietary behaviors during breast-feeding. A former student responded that, “It helped me a lot after because I breast-fed my daughter and I didn’t know anything like foods you’re supposed to eat and that you’re not supposed to eat chocolate. When I read the book I learned all about that stuff. It prepared me for what I had to do.” Another reaction was, “During my pregnancy it didn’t make a difference because I wasn’t eating all the time. I was sleeping. But like my nutrition afterwards when I used to breast-feed my daughter when I came back to school. It helped me to realize that I had to drink water and keep my fluids up and what not to eat.”

The fifth topic was regarding Health-Care Practices. Three former students (43%) answered that their attitudes had been changed through the curriculum and two (29%) indicated that their behaviors had changed. Examples of these responses include comments such as, “I had never been around babies so I had to learn all that stuff and when it’s supposed to happen.” and “That helped me a great deal because I had no clue.” Another participant replied, “That was real important because when I got pregnant I didn’t know even how to hold a baby. I didn’t know you had to take prenatal vitamins and know you had to go to check-ups and ultrasounds to make sure that the baby is healthy.” The reaction from one woman included information about her level of activity during pregnancy. “I was very active before I had the baby and even though I was pregnant I was still running and playing sports and continuing with my life because I was able to and if I didn’t know that after I got pregnant I could still keep up my daily activities I probably would have sat on the couch and maybe would have gained a lot more weight than I did and maybe had a higher risk for toxemia or high blood pressure.”
The sixth topic addressed was Environmental Effects on the Unborn Baby. Four participants (57%) reported changes in their attitudes resulting from the healthy pregnancy curriculum and 29% stated a change in their behaviors. Most of the comments addressed the issue of second-hand smoke. All the responding participants said that they did not smoke during pregnancy, but they had difficulties with family members who smoked. “I have enough respect for you that if you ask me not to walk in front of you while you watch TV, have enough respect for me that if you’re going to sit outside, sit across the lanai so the smoke isn’t around the baby. Don’t smoke in the house and don’t smoke in the car. When my sister would drop me off at school it was a big argument. It was a big concern to me because I didn’t want her to grow up developmentally slow and not have strong lungs and not have a strong heart.” Two former students responded with specific changes they made in their behavior regarding environmental effects on the unborn baby. One woman stated that she would vomit to stop her mother from smoking in the house. “No one was allowed to do anything around me that might mess up the baby. No one was allowed to smoke in the house. I’d throw-up my breakfast just to get out of the house if someone was smoking.” A second participant mentioned that, “Of course you know you’re not supposed to drink alcohol and all that stuff while you’re pregnant, but there’s other stuff too. Like I was drinking sodas every day until I found out that it has caffeine, and it was hard to do [quit], but I did it because of the baby.”

The seventh topic, Fetal Growth and Development, resulted in four participants (57%) describing the value of information on this topic during their pregnancies. One participant stated the, “That was the best part in the whole book because you can’t see what’s growing inside of you. But, when you look at all the things in the book and on the
computer you can see what’s going on inside of you. I don’t know I just felt like I connected.” Another participant made similar remarks. “I think that the book on that subject was very helpful because as you’re feeling it you could put a description of what you were feeling. So like the reality of it and then like the description in the book made you feel a little bit more confident.” A third former student replied, “That helped just because you know exactly how big the baby was. I was just like, ‘Oh, yea I have a baby in me; I just don’t know how big it is.’ And then I’d go to the doctor and the doctor was always rushing me. He never wanted to do a sonogram.” She continued by saying, “It helped when we had the books and the pictures just so you could see about where you were, so you could know exactly what they were looking like and if they had hands and see their nose and everything.”

The eighth topic was regarding sexually transmitted diseases. Four former students (57%) responded that they learned a lot, the information was important, and changed their attitudes. However, none of them stated that their behaviors had actually changed. One woman replied, “It was very helpful because after pregnancy it’s not like you stop having sex.” This same participant further explained, “If you’re going to sleep with somebody make sure you’re protected. Make sure you’re on birth control. Make sure that the person did get tested.” Another former student’s reply was more focused on the effects of sexually transmitted diseases on the individual’s family. “I think a lot when they were coming in from the Health Department and whenever they showed a video on people who had AIDS and all that kind of stuff and you think you know about those kinds of diseases, until you actually see the videos with people who actually have these diseases, and what it’s doing to their children and their families and all that. I mean,
before I thought, well yeah I know AIDS is a deadly virus, but I didn’t think about it as much as I did afterwards.” A third participant, as she was describing learning about the effects of sexually transmitted diseases on teenagers and their babies, remarked that, “It opened my eyes. A lot of it made me realize you don’t need love in that aspect from every guy you come across because it’s not worth it.”

Decision Making was the ninth topic discussed. Six respondents (86%) stated that information they learned about decision-making was important and affected their attitudes. However, only two (29%) indicated a change in behaviors. One participant answered that having a child at a young age is difficult and requires making a lot of decisions. Another woman replied that, “I think that even while you’re still pregnant you’re thinking about what you want for your baby and what you want for their future. So you’re making a lot of decisions. You know, I made a lot of decisions about what I want my son to have and what I want him to grow up with and what kind of environment I want him to be in.” Two former students discussed how their behaviors had changed. A participant explained how learning about decision-making made her more cautious of the people she exposed her son to. “So I have a very secluded circle now that I’ve gone through ups and downs. I have, now, maybe four or five people that I talk to now that I’ll take him around. Otherwise, I go by myself or I don’t go anywhere just so that I know that he knows that some things he can do and other things are not OK to do out in the world. Cause like right now he plays with my cousin and he thinks it’s OK to fight because my cousin is 13 and that’s all they do. So, he goes to school and he gets in trouble for it. So we’re trying to get him to understand that.”
Three participants used the topic of decision-making as an opportunity to explain that they wished they had waited before having children and they advise other adolescents to wait. “I know that you need to make decisions not only for yourself, you have another person to take care of and another person to look after. So it really helps that whatever decisions you make you need to understand that it’s affecting your child. And that’s the reason that when I see other girls that are going to school, I say, if you have a baby, to go to school, to have a job, if you don’t have a husband first, to have your husband first because it is going to affect your child in the future. And not only your child, it’s also going to affect you. Being in this program really helped me to understand that you need to keep going. You need to get a career. You need to help put your child in a safe environment so that your child feels safe and protected.” Another woman stated that, “I would not change anything I did cause I love my daughter and wouldn’t give her up for anything. It makes you wish you made better choices and waited a couple of years before I had her.”

The tenth and final topic was family planning and birth control. Four participants (57%) stated the value of this information to prevent a second pregnancy. One woman answered that, “I want my son to have the attention he deserves as long as he can and not bring another child into that. I think that birth control is very important.” Another participant responded that she started using birth control right after her baby was born. “You can be on birth control and still get pregnant you know, you should take every precaution you can think of unless you want to get pregnant.”

Some of the respondents' remarks did not apply directly to one of the ten topics. For example, one participant listed changes in her attitudes and behaviors due to the
healthy pregnancy curriculum as a whole. “I can say it changed my behavior. Because when I first got pregnant, I was like, “I’m pregnant—so what? Who cares? It happens to every girl that didn’t know enough not to get pregnant.” And it was like, “I don’t care. I’m going to eat fat food and I’m going to do whatever I want to do. I’m still going to go out and hang out with my friends and come home late. And I’ll stay out as late as I want to stay out.” Coming to this program really changed my behavior because then I saw that you need to get a lot of sleep. You need to relax. You need to exercise. You need to eat healthy.” This same former student went on to say, “It really helped me a lot and it changed me…I think that helped me a lot [learning] about human reproduction when I was here.”

Question two was: “What improvements would you suggest for the H.O.P.E teen parent program? Only one participant responded to this question with a suggestion for improvement. “I would have liked to have heard more from girls who were like in their early 20s who had had kids while they were in school. And, you know, heard their stories of triumph and tribulations. I would rather have had a day that Rae would have three or four older students come back and explain this is where I am now and this is how I got here. Because it is really hard because your family don’t really understand what you’re going through because your parents had you when they were in their late 20s, early 30s, and to them being 16 and having a baby is like, “What are you doing?” They’re like hindering you rather than helping you, it seems like at times. So to hear girls’ stories who were younger and, you know, how they made it through and made their decisions and got through school, probably would have helped rather than trying to go blindly into the open world just graduating from school.”
Three former students answered the second question by mentioning aspects of the program they especially liked. Former students listed the parenting classes, the health care services, and the childcare program as specific components they found the most helpful. Additionally, two participants stated the value of being in a program with other pregnant and/or parenting adolescents. “You know, when I think back about the program, I think about, you know she was saying about how it makes you so comfortable to know that you’re not the only person going through this. You know, when I went to the high school I went to before I went here, it was like, ‘I’m all alone.’ Nobody else was pregnant at 16. And I would walk around school and people were like, ‘What happened to her?’ It’s like—I didn’t just get fat, I’m pregnant you know! And then I came here and was like, ‘Wow!’ I didn’t know it happened to so many other kids. And then after you have the baby, you know before you get to see the daycare and get to take a tour of everything that happens. And you get to talk to the other girls. The other girls tell you about the daycare. And I think back now and my son goes to daycare, but I can’t be there all day. When I was here it was like, ‘Oh, I’ll just go check over there.’ But now, it’s kind of disappointing.”

Another former student described her experience by stating that initially she just wanted to go to school and not have anyone ask her any questions. “And then, it was like everyone has the same stomach I have. Or there’s another girl that’s six months pregnant like me. Or, she eats the same foods I eat. I eat a lot, she eats a lot, we both eat a lot. We’re both getting fat together. And then I had the baby and then I went to the daycare, and the attention and the energy that was there. I was like, there are twelve other babies there, how are you going to know what my baby needs? And then after I started going
there a week later I was like, they know my baby better than I know my baby. They would call me and remind me of things. They follow everything and write down everything.” This same participant concluded by saying, “the energy and how much they love the babies and they love what they’re doing. And that’s what they want to do. It’s good.”

**Follow Up Interviews**

The follow-up interviews of all seven focus group participants were conducted by telephone two or three days after the focus group sessions had taken place. The purpose of the follow-up interviews was to allow participants to contribute further information they may have considered after the focus group session or add comments they perhaps did not feel comfortable expressing in the group setting.

Two questions were asked during the follow-up telephone interviews: Is there anything else that you would like to share? And, Do you have any other thoughts regarding the healthy pregnancy curriculum, either positive or negative?

The follow-up interviews did not yield any additional information. When asked, “Is there anything else you would like to share?” all of the participants answered, “No.” The second question, “Do you have any other thoughts regarding the healthy pregnancy curriculum, either positive or negative?” also resulted in no new information. One adolescent stated that she had said everything that she wanted to say during the focus group. Another participant explained that although she had not said much during the focus group discussion, she did not have anything to say that the other participants had not already mentioned.
CHAPTER 5

CONCLUSION

The present study was designed to determine if there are differences in birth weight of infants, tobacco use during pregnancy, and Apgar scores of infants between pregnant adolescents who successfully complete a healthy pregnancy curriculum and those who do not and to further examine the adolescent mothers’ perceptions of the major concepts included in the Healthy Pregnancy Curriculum. This chapter presents a summary of the study, findings, conclusions, and recommendations.

Summary of the Study

The study presented here involved the collection and analyses of retrospective data to determine differences in birth weight of infants, tobacco use during pregnancy, and Apgar scores of infants between pregnant adolescents who successfully complete a healthy pregnancy curriculum and those who do not. Further, a questionnaire, focus group discussions, and follow-up interviews were conducted with former students of the healthy pregnancy curriculum to examine the adolescent mothers’ perceptions of the major concepts included in the healthy pregnancy curriculum. The participants answered questions regarding how important they thought each major concept is for inclusion in the healthy pregnancy curriculum, how much they learned about each major concept, and how helpful that information was in their own experiences.
The review of literature and relevant research provided in this study examines the role of teen parenting programs in promoting improved outcomes for infants born to adolescent mothers. An analysis of issues surrounding teenage parenting in the United States including an investigation of a landmark study, the effects of early childbearing on the adolescent, the incidence of adolescent pregnancy and birth rate, and the negative outcomes for children born to adolescent mothers was presented. Further, a discussion of research examining teen parenting programs was also supplied. Relevant recommendations for school-based teenage parenting programs were outlined and the role Florida has played in the development of teen parenting programs was described.

The first section of the current study sought to answer the research questions regarding differences in birth weight of infants, tobacco use during pregnancy, and Apgar scores of infants between pregnant adolescents who successfully completed a healthy pregnancy curriculum and those who do not through the use of archival data. These data were provided by the Health Department Office of Vital Statistics of Charlotte County, the school nurse of the H.O.P.E. teen parent program, and school records from The Academy.

The second section of this research used a convenience sample of former students who had successfully completed the healthy pregnancy curriculum to complete a questionnaire, participate in a focus group discussion, and take part in a follow-up interview to examine the adolescent mothers’ perceptions of the major concepts in the healthy pregnancy curriculum. Participants were asked questions to determine their perceived importance and helpfulness of various healthy pregnancy curricular components.
All data analyses were conducted utilizing the Statistical Package for the Social Sciences (SPSS-Windows), version 11.0. Descriptive statistics and an independent t-test were used to examine differences in the incidence of low birth weight infants and Apgar scores for adolescents who have successfully completed a healthy pregnancy curriculum and those who have not. A chi-square test and cross-tabulations were used to determine the significance, if any, in the difference in tobacco use for the two groups of adolescents.

The data used to examine the question regarding which components of the healthy pregnancy curriculum are perceived as the most important and the most helpful by former students were collected from questionnaires, focus group discussions, and follow-up interviews. The data from the questionnaires were entered in SPSS for an analysis of frequencies. The data from the focus group discussions and follow-up interviews were recorded, transcribed, and then analyzed by using coding categories.

Summary of the Findings

An analysis of the data for the first three questions did not show statistical differences between adolescents who successfully completed a healthy pregnancy curriculum and those who did not complete a healthy pregnancy curriculum. These findings of non-significance may be due to the small number of participants (n=50), non-participants (n=149), and the limited duration of the study data (1999 to 2003). A larger population over a longer period of time might yield different results. Furthermore, since Charlotte County has a lower rate of low-birth weight infants born to all adolescent mothers (7.8 in 2002) than the national rate (9.6 in 2002) or the state rate (10.3 in 2002) (Florida Department of Health, 2004; Martin et al., 2003), a similar study might show
greater significance if conducted in another county where the birth outcomes for adolescents more closely match the state or national rate. Of course, there exists the possibility that there is no significant difference in birth outcomes for adolescents who successfully complete a healthy pregnancy curriculum and those who do not in this county.

Although a greater number of participants for the qualitative data would have resulted in a more meaningful outcome, the findings from the data provided by the seven former students suggest that adolescents who successfully complete the class perceive the healthy pregnancy curriculum as valuable and important. The participants indicated that the curriculum content areas of The Birth Process, Nutrition, Decision Making, and Family Planning were “extremely important” components of the curriculum, that they “learned a lot” or “learned quite a bit,” and that the information in those areas was either “extremely helpful” or “very helpful.”

Several inconsistencies were noted in the responses. For example, even though all the former students answered that they thought the content area of Human Reproduction was “extremely important” or “very important” for inclusion in the curriculum, and all participants indicated that they “learned quite a bit,” 29% of the women also responded that the information they learned was only “a little bit helpful.” However, upon review of the focus group discussions, comments revealed that more than half (57%) of the women taking part in the discussions experienced a change in attitudes and more than half (57%) also underwent changes in their behaviors as a result from the information they gained from their study of Human Reproduction. Perhaps the women
did not realize the value of the information they learned until they started discussing their changes in attitudes and behaviors with the other participants.

Discrepancies were also noted in the responses to the topics of The Birth Process and Nutrition. All the participants replied that they thought these two areas were “extremely important” or “very important.” However, one former student indicated that she only “learned a little” about both topics, and still she remarked that the information in both areas was “very helpful.” Possibly, she felt that even a small amount of information was valuable regarding The Birth Process and Nutrition. Most of the respondents (86% and 71%) indicated changes in their attitudes for those two topics and 43% recounted changes in their behavior regarding Nutrition. Although 43% is not a majority of the participants, when discussing a change of a behavior as critical to improved birth outcomes as nutrition during pregnancy, this is a result worthy of mention.

The content areas of Health-Care Practices and the Environmental Effects on the Unborn Baby revealed similar results. All of the former students replied that they thought these two topics were “extremely important” or “very important” and they also “learned a lot” or “learned quite a bit.” However, one participant stated that she found the information for those topics, “only a little bit helpful.” Forty-three percent of the respondents mentioned changes in their attitudes resulting from the information they learned about Health-Care Practices and 29% reported changes in their behaviors. A majority (57%) stated changes in their attitudes regarding Environmental Effects on the Unborn Baby and 29% described behavior changes. Once again, behavior changes in the areas of Health-Care Practices and Environmental Effects on the Unborn Baby are important to note due to their potential for influencing birth outcomes.
The responses for the topic of Common Sexually Transmitted Diseases were also inconsistent. Although all the respondents replied that this topic was “extremely important” or “very important,” and most of the former students (71%) also indicated that the information was “extremely helpful” or “very helpful,” none of them indicated a change in behavior. Four women (57%) made comments suggesting a change in attitudes regarding Common Sexually Transmitted Diseases. The possibility exists that the participants were not comfortable discussing a topic of this nature in a group setting. However, it is also possible that none of them changed their behavior regarding Common Sexually Transmitted Diseases, even though they recognize the importance of the knowledge and the resulting health implications.

Conclusions

The review of relevant literature revealed little research demonstrating the outcomes of teen parent programs that serve pregnant adolescents and no studies examining the curriculum used in school-based healthy pregnancy courses. While there are no statically significant findings from the data analyzed in the present study, the previous studies summarized in the review of literature found improved birth outcomes for the participating adolescent mothers (Barnet, Duggan, & Devoe, 2003; Meadows, Sadler, & Reitmeyer, 2000; Philliber et al., 2003; Weinman, Solomon, & Glass, 1999). The qualitative data presented in the current study suggest that adolescents participating in a healthy pregnancy class find the curriculum valuable and helpful. The data provided by the seven former students indicate that pregnant adolescents who successfully complete the class perceive the components of the healthy pregnancy
curriculum as having the ability to affect positive changes in attitudes and behaviors. Topics that were indicated as particularly significant were The Birth Process, Nutrition, Decision Making, and Family Planning. Participants further indicated they experienced changes in their attitudes for all ten topics and changes in their behaviors in the areas of Human Reproduction, Nutrition, Health-Care Practices, Environmental Effects on the Unborn Baby, and Decision Making.

Recommendations

Educating pregnant and parenting adolescents remains a challenge. Although, as historian Vinovskis (2003) has pointed out, major changes have occurred since the 1950s and 1960s when pregnant adolescents were forced to quit school. Federal regulations now prohibit discrimination against students due to pregnancy and childbirth (Nondiscrimination, 2003) and many states provide teen parenting programs to help pregnant and parenting students complete high school (Children’s Defense Fund, 2002). However, there are issues that still need to be addressed to provide educators with the knowledge necessary to optimize educational opportunities for this population.

Investigating the curricula used in teen parent programs is one place to start an examination of the issues involved in educating pregnant and parenting adolescents. The review of literature conducted for the present study was unable to locate any research that analyzed curriculum for healthy pregnancy classes. Therefore, future research designed to clarify which components of the curriculum are most helpful for the participants would serve to assist curriculum planners. Since the “window of opportunity” that exists to educate pregnant adolescents is small, concepts included in curricula need to be those
with the highest potential for positively affecting birth outcomes. Additional qualitative investigation into the perceptions of pregnant adolescents regarding curriculum components would help identify those most valuable.

Other research suggestions include conducting similar studies with a larger population and over a longer study period. Also, research completed in other geographical locations could produce very different results.

Since Charlotte County has more positive birth outcomes and fewer low birth weights than other areas, a logical question would be “Why does this difference exist?” A study designed to look at differences between Charlotte County and other counties with poorer birth outcomes, especially among adolescent births, might reveal characteristics that could contribute to improved outcomes.
APPENDIX A

STATE OF FLORIDA REQUIRED CURRICULUM FRAMEWORK FOR
HEALTHY PREGNANCY CURRICULUM
A. Major concepts/content. The purpose of this course is to develop knowledge and skills that promote a healthy baby, mother, and family. The content should include, but not be limited to, the following:
   - human reproduction
   - physical changes during pregnancy
   - the birth process
   - nutrition
   - health-care practices
   - environmental effects on the unborn baby
   - fetal growth and development
   - common sexually transmitted disease
   - decision making
   - family planning

B. Special note. Any student whose parents make a written request to the school principal shall be exempt from AIDS instructional activities. Curriculum frameworks for AIDS education shall not interfere with the local determination of appropriate curriculum which reflects local values and concerns.

C. Course Requirements. After successfully completing this course, the student will:
   1. Explain the human reproductive system and the birth process.
   2. Understand physical changes that occur during pregnancy.
   3. Describe appropriate nutrition, exercise, and health-care practices that promote a healthy baby and mother.
   4. Explain the relationship between the psychological state of the mother and the health of the mother and the unborn child.
   5. Recognize the stages of fetal growth and development.
   6. Identify local resources and agencies providing services to adolescents and their families.
   7. Demonstrate responsible decision-making skills in connection with sexuality and family planning.
   8. Recognize signs, symptoms and prevention of common sexually transmitted diseases, including Acquired Immune Deficiency Syndrome (AIDS). (Florida Department of Education, 1990)
APPENDIX B

QUESTIONNAIRE
Please read each statement and put an “X” in the box that best describes your thoughts and experiences with the Healthy Pregnancy Curriculum.

1. How important do you think each of the following topics are for the Healthy Pregnancy Curriculum?

   - Human Reproduction
   - Physical Changes During Pregnancy
   - The Birth Process
   - Nutrition
   - Health-Care Practices
   - Environmental Effects on the Unborn Baby
   - Fetal Growth & Development
   - Common Sexually Transmitted Diseases
   - Decision Making
   - Family Planning

2. How much did you learn in the Healthy Pregnancy Course about each of the following topics?

   - Human Reproduction
   - Physical Changes During Pregnancy
   - The Birth Process
   - Nutrition
(Continued) How much did you learn in the Healthy Pregnancy Course about each of the following topics?

Health-Care Practices
Environmental Effects on the Unborn Baby
Fetal Growth & Development
Common Sexually Transmitted Diseases
Decision Making
Family Planning

How helpful was the information you learned in each of the following areas?

Human Reproduction
Physical Changes During Pregnancy
The Birth Process
Nutrition
Health-Care Practices
Environmental Effects on the Unborn Baby
Fetal Growth & Development
Common Sexually Transmitted Diseases
Decision Making
Family Planning
APPENDIX C

INTERVIEW PROTOCOL FOR FOCUS GROUPS
Interview Protocol for Focus Groups
Project: A Healthy Pregnancy Curriculum for Adolescent Mothers: Participants’ Perceptions and Effects on Infants’ Birth Weight

Time of interview:

Date:

Interviewer:

Focus group participants:

Questions:

1. Did the information from the healthy pregnancy class on the following topics change your behaviors and/or attitudes during pregnancy? If yes, how did your behavior change?
   a. Human reproduction
   b. Physical changes during pregnancy
   c. The birth process
   d. Nutrition
   e. Health-care practices
   f. Environmental effects on the unborn baby (this includes smoking, alcohol, and drug use)
   g. Fetal growth and development
   h. Common sexually transmitted diseases
   i. Decision making
   j. Family planning and birth control

2. What improvements would you suggest for the H.O.P.E. Teen Parent Program?
APPENDIX D

INTERVIEW PROTOCOL FOR FOLLOW-UP INTERVIEWS
Interview Protocol for Follow-Up Interviews  
Project: A Healthy Pregnancy Curriculum for Adolescent Mothers: Participants’ Perceptions and Effects on Infants’ Birth Weight

Time of interview:

Date:

Interviewer:

Participant:

1. Is there anything else that you would like to share?

2. Do you have any other thoughts regarding the healthy pregnancy curriculum, either positive or negative?
APPENDIX E

CONSENT FOR QUESTIONNAIRE AND FOCUS GROUP
INFORMED CONSENT FOR QUESTIONNAIRE AND FOCUS GROUPS

Rae Konjoian  
146 Dartmouth Drive  
Port Charlotte, Florida 33952  
(941) 764-0847

November 3, 2004  
Dear former H.O.P.E. participant:

This research is undertaken for completion of my doctorate at the University of Central Florida. You are being asked to participate in a questionnaire and focus group because you have been identified as a former participant of the H.O.P.E. Teen Parent Program. Your thoughts regarding what components of the healthy pregnancy curriculum are important will help to improve the quality of the H.O.P.E. program for pregnant and parenting teenagers.

Your participation is voluntary. The questionnaire and focus group discussion including eight to ten participants will take no more than one hour. I will call you on the telephone two to three days after the focus group discussion for a follow-up interview consisting of three questions. You will not have to answer any question you do not wish to answer during the focus group discussion or during the follow-up interview and you may discontinue participation or withdraw your data at any time without consequence. The focus group discussion and the follow-up interview will be recorded using an audiotape. I am the only person with access to the tape, which I will personally transcribe, removing any identifiers during transcription. At the end of this research (by December, 2005) the tapes will be destroyed. If you desire a summary of the results of my study, please check here and I will send them to you when completed.

Please complete the information requested on the lines provided below:

_______________________________________  
Name (print)

_______________________________________  
Address

_______________________________________  
City, State, Zip

_______________________________________  
Phone Number

_______________________________________  
Alternate Number (if I cannot reach you at the first number)

_______________________________________  
Best time of day to call

There is no anticipated risk or direct benefit to participants. Unfortunately, I cannot compensate you for your time, but your participation is greatly appreciated. If you have any questions about this research you may call me at (941) 764-0847. My faculty supervisor is Dr. Kay Allen. Questions or concerns about research participants’ rights may be directed to the UCFIRB office, University of Central Florida Office of Research, Orlando Tech Center, 12443 Research Parkway, Suite 207, Orlando, FL 32826. The phone number is (407) 823-2901.

Sincerely,

Rae A. Konjoian

________________________  I have read the procedures described above regarding research for A Healthy Pregnancy Curriculum for Adolescent Mothers: Participants’ Perceptions and Effects on Infants’ Birth Weight.

________________________  I voluntarily agree to participate in the procedure.

________________________  I have received a copy of this description.

Participant Signature       Date
APPENDIX F

IRB APPROVAL
May 30, 2004

Rae Konjoian  
146 Dartmouth Drive  
Port Charlotte, FL 33952

Dear Ms. Konjoian:

With reference to your protocol entitled, "A Healthy Pregnancy Curriculum for Adolescent Mothers: Participants' Perceptions and Effects on Infants' Birth Weight," I am enclosing for your records the approved, executed document of the UCFIRB Form you had submitted to our office.

Please be advised that this approval is given for one year. Should there be any addendums or administrative changes to the already approved protocol, they must also be submitted to the Board. Changes should not be initiated until written IRB approval is received. Adverse events should be reported to the IRB as they occur. Further, should there be a need to extend this protocol, a renewal form must be submitted for approval at least one month prior to the anniversary date of the most recent approval and is the responsibility of the investigator (UCF).

Should you have any questions, please do not hesitate to call me at 823-2901.

Please accept our best wishes for the success of your endeavors.

Cordially,

Chris Grayson  
Institutional Review Board (IRB)

Copies: Dr. Kay Allen  
IRB File
THE UNIVERSITY OF CENTRAL FLORIDA
INSTITUTIONAL REVIEW BOARD (IRB)

IRB Committee Approval Form

PRINCIPAL INVESTIGATOR(S): Rae Konjoian

PROJECT TITLE: A Healthy Pregnancy Curriculum for Adolescent Mothers: Participants' Perceptions and Effects on Infants' Birth Weight.

[ ] Contingent Approval
Dated: __________

[ ] Final Approval
Dated: __________

[ ] Expedited
Dated: 25 May 2007

[ ] Exempt
Dated: __________

Committee Members:
- Dr. Theodore Angelopoulos:
- Ms. Sandra Browdy:
- Dr. Jacqui Byers:
- Dr. Rama Chakrabarti:
- Dr. Karen Dennis:
- Dr. Barbara Fritzsche:
- Dr. Robert Kennedy:
- Dr. Gene Lee:
- Ms. Gail McKinney:
- Dr. Debra Reinhart:
- Dr. Valerie Sime:

Signed: [Signature]
Dr. Sophia Dziugielski

NOTES FROM IRB CHAIR (IF APPLICABLE): Researcher will clarify if follow-up interviews will be conducted and procedure that will be followed.
APPENDIX G

SCHOOL BOARD APPROVAL
David E. Gayler, Ph.D  
Superintendent

May 14, 2004

Rae Konjoian  
146 Dartmouth Drive  
Port Charlotte, Florida 33952

Dear Ms. Konjoian,

We have received your request to conduct research in Charlotte County Public Schools, and upon review, have approved your request. While conducting your research you will be required to adhere to the following policies:

• Student data is to be held in the strictest confidence. We ask that you avoid the use of student identifying information (name, address, family names, etc.), and instead utilize student numbers, or categorically summarized information.

• If a breach in confidentiality of student information occurs, you will report it immediately to the Director of Professional Development.

• Research involving teachers needs to be conducted during non-duty hours, unless it involves collecting information in the instructional setting.

• For any activities occurring on school grounds, including contacting teachers, you will need to notify the principal/site leader of your study, and abide by any local site requirements. You may refer the leader to my office for questions.

• Please provide a copy of your final report – when completed – to my office.

We thank you for your interest in conducting research in Charlotte County, and wish you every success. If you should need further assistance, please contact Chuck Bradley, Director of Professional Development, at 941-255-0808 x3024.

Sincerely,

Chuck Bradley  
Director of Professional Development  
941-255-0808 x3024  
Chuck.Bradley@ccps.k12.fl.us

Cc: Dr. David Gayler, Dr. Rene Desjardins, Dr. Donna Widmeyer,  
Dr. Tom Young, Dr. Roseann Samson

1445 Education Way, Port Charlotte, FL 33948 • (941) 255-0808 • fax (941) 255-7571 • www.ccps.k12.fl.us


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and their children through a high school based childcare center and parent support

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