Analysis of the effectiveness of the Circle of Care Program in increasing life outcomes among teen mothers in Troup County, Georgia

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ANALYSIS OF THE EFFECTIVENESS OF THE CIRCLE OF CARE PROGRAM
IN INCREASING LIFE OUTCOMES AMONG TEEN MOTHERS IN
TROUP COUNTY, GEORGIA

By
Andrea Michelle Brace

A Thesis
Submitted to the Faculty of
Mississippi State University
in Partial Fulfillment of the Requirements
for the Degree of Master of Science
in Health Promotion
in the Department of Food Science, Nutrition, and Health Promotion

Mississippi State, Mississippi
May 2009
ANALYSIS OF THE EFFECTIVENESS OF THE CIRCLE OF CARE PROGRAM
IN INCREASING LIFE OUTCOMES AMONG TEEN MOTHERS IN
TROUP COUNTY, GEORGIA

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Troup County, Georgia has been afflicted with elevated teen pregnancy and subsequent teen pregnancy rates. As a result, Circle of Care was developed to reduce the subsequent teen pregnancy rate within Troup County. Circle of Care works with pregnant and parenting teens and their families to enhance their quality of life. A case manager provides information, education and support to enable the teens to stay in school, prevent subsequent teen pregnancies, and prevent child abuse and neglect.

This study evaluates the effectiveness of Circle of Care by determining if intensity and duration of program participation have an impact on achieving the desired outcomes for program participants. The results of this research suggest that Circle of Care is reducing subsequent teen pregnancies, increasing educational attainment and decreasing child abuse and neglect among program participants.

Key words: subsequent teen pregnancy, intervention and prevention programs, high school completion, child abuse and neglect
DEDICATION

I would like to dedicate this manuscript to the Woo, the Han and Winkie. Your love and support are endless and I truly appreciate you. I would not have made it here without you.

I would also like to dedicate this to all of the teen mothers that are working against difficult odds to improve their lives and the lives of their children.
ACKNOWLEDGEMENTS

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CHAPTER I
INTRODUCTION

Teen pregnancy and childbearing is a significant issue in the United States resulting in numerous problems for the mother, child, and society as a whole (Henshaw, 1996; Kalmuss & Namerow, 1994; Maynard, 1996; Maynard, 1997; Singh & Darroch, 2000). Rates of teen pregnancy and teen childbirth in the United States are higher than any other industrialized nation (Singh & Darroch, 2000). Nationally, teen pregnancy rates were highest in 1990, when the rate was 116.8 per 1,000. Teen pregnancy rates decreased to 41.1 per 1,000 in 2004. In 2006, the teen birth rate increased for the first time in fifteen years, which indicates the teen pregnancy rate may have increased as well (Hamilton et al, 2007). Within the state of Georgia, teen pregnancy rates are similar to those for the United States; however, at the county level, rates can be significantly higher than the state or national rates.

It has been estimated that adolescents giving birth before the age of eighteen costs the United States $9.1 billion dollars annually (NCPTUP, 2006). Studies have revealed that teens who give birth to a child are more likely to drop out of high school, resulting in a decreased lifelong earning potential (Maynard, 1996). Teen moms are more likely to lack proper parenting skills, leading to an increased rate of child abuse and neglect (Maynard, 1997). Teen mothers additionally have an increased risk of giving birth to a
second child while they are still under the age of twenty, exacerbating the aforementioned problems and creating a host of additional issues (Kalmuss & Namerow, 1994).

There are lifestyle and behavioral predictors common among teen mothers. Teen pregnancy intervention programs have been created and implemented with the goal of impacting these predictors, thus potentially decreasing the rate of teen pregnancy among all teens, particularly for those teens that have already given birth. Circle of Care is an intervention program that has been implemented in Troup County, Georgia to provide intensive services to pregnant and parenting teens.

Statement of the Problem

Teen pregnancy is a significant social problem in the United States. Teen mothers and their children face countless hardships that negatively impact their life outcomes. They are less likely to complete high school, which can significantly decrease their lifetime earning potential. They are at an increased risk of abusing and neglecting their children, and they face a greater risk of having subsequent pregnancies before the age of twenty. Each of these problems creates a burden for both the teen mother and her child, as well as society. Providing intervention and prevention services to address these problems are imperative for the individuals involved and for society.

Purpose of the Study

This study aims to evaluate the effectiveness of a teen repeat pregnancy prevention program by determining if intensity and duration of program participation have an impact on achieving the desired outcomes for program participants. If the
specific dosage of the delivery of program services can be identified and established and related to successful outcomes, the program could potentially be replicated in other communities. The specific research questions to determine this information include:

1. *Does program participation impact educational attainment?* Outcomes are measured by determining the number of participants that have completed high school or remain enrolled in school with the goal of completing high school.

2. *Does program participation impact the repeat pregnancy rate?* Outcomes are measured by determining the number of participants that don’t have a subsequent pregnancy before the age of twenty.

3. *Does program participation impact the rates of child abuse and neglect?* Outcomes are measured by determining the number of participants that have abused or neglected their children.

4. *Do participants in the Circle of Care program have improved educational attainment when compared to the general population of teen mothers?* Outcomes are measured by comparing the percent of program participants that complete high school with the general population of teen mothers.

5. *Do participants in the Circle of Care program have decreased repeat teen pregnancies when compared to the general population of teen mothers?* Outcomes are measured by comparing the percent of program participants that don’t have another child before the age of twenty with the general population of teen mothers.

6. *Do participants in the Circle of Care program have decreased incidence of child abuse and neglect when compared to the general population of teen mothers?*
mothers? Outcomes are measured by comparing the percent of program participants that abuse or neglect their children with the general population of teen mothers.

7. Does intensity of the delivery of Circle of Care program services impact participant educational attainment? Outcomes are measured by determining if participants that received more case management had increased educational attainment than those that received fewer services.

8. Does intensity of the delivery of Circle of Care program services impact the participant repeat pregnancy rate? Outcomes are measured by determining if participants that received more case management had fewer subsequent teen pregnancies than those that received fewer services.

9. Does intensity of the delivery of Circle of Care program services impact participant rates of child abuse and neglect? Outcomes are measured by determining if participants that received more case management had a decreased incidence of child abuse and neglect than those that received fewer services.

10. Does the duration of the program participation in Circle of Care impact participant educational attainment? Outcomes are measured by determining if participants that were in the program longer had increased educational attainment than those that were in the program less time.

11. Does the duration of the program participation in Circle of Care impact the participant repeat teen pregnancy rate? Outcomes are measured by determining
if participants that were in the program longer had fewer subsequent teen pregnancies than those that were in the program less time.

12. *Does the duration of the program participation in Circle of Care impact participant incidence of child abuse and neglect?* Outcomes are measured by determining if participants that were in the program longer had decreased incidence of child abuse and neglect than those that were in the program less time.

13. *Does participant age at the birth of her first child impact participant educational attainment?* Outcomes are measured by determining if participant age at the birth of their first child has an impact on educational attainment.

14. *Does participant age at the birth of her first child impact participant repeat pregnancy rates?* Outcomes are measured by determining if participant age at the birth of their first child has an impact on repeat teen pregnancy rates.

15. *Does participant age at the birth of her first child impact participant incidence of child abuse and neglect?* Outcomes are measured by determining if participant age at the birth of their first child has an impact on the incidence of child abuse and neglect.

16. *Do living situations impact participant educational attainment?* Outcomes are measured by determining if participant living situation has an impact on educational attainment.

17. *Do living situations impact participant repeat teen pregnancy rates?* Outcomes are measured by determining if participant living situation has an impact on the repeat pregnancy rate.
18. Do living situations impact the participant incidence of child abuse and neglect? Outcomes are measured by determining if participant living situation has an impact on the incidence of child abuse and neglect.

**Rationale and Need for the Study**

Teen pregnancy is a persistent and expensive problem in Troup County, Georgia. Teen pregnancy rates have been significantly higher in Troup County than the overall rates for the state of Georgia and the United States. Teens that become pregnant and have children are at a greater risk of not completing high school, abusing and neglecting their children, and having subsequent pregnancies during their teen years.

To address this chronic problem, the Circle of Care program was implemented to provide intervention and prevention services to pregnant and parenting teens to reduce the risk of these negative outcomes. The goal of the program is to increase educational attainment, reduce child abuse and neglect, and to prevent subsequent teen pregnancies. By targeting teen mothers and providing them with the tools to accomplish these goals, their overall quality of life will increase when compared to teen mothers that don’t receive these intervention services.

**Assumptions**

The Center for Community Studies, Inc. provided the anonymous data set which was used in this evaluation. It was provided in an Excel spreadsheet which did not contain any identifying variables. The Center for Community Studies, Inc. collected the
data from the various collaborating organizations and compiled it for use in this study. The data are assumed to be accurate and correct.

**Limitations and Delimitations of the Study**

This research study was conducted only within Troup County, Georgia which is located in the western part of the state. The program has been offering prevention and intervention services to Circle of Care participants for eleven years; however, data were only available for three years for this research study.

The participants of this study include any Circle of Care participant that received case management services from 2006 through 2008. Program participants were tracked over the course of their involvement with Circle of Care, and the intensity and duration of their involvement were evaluated.

This research evaluated the effectiveness of the delivery of intervention and prevention services to pregnant and parenting teens. An examination of the relationship between the intensity and duration of the delivery of program services and outcomes of program participants was undertaken. Outcomes include the prevention of subsequent teen pregnancies, preventing child abuse and neglect, and increasing educational attainment among program participants.

Limitations of this study are related to the data. Data were requested from each partnering agency to allow for the relationship of intensity and durations of program services and program outcomes to be revealed. Not all partnering agencies that provided services to program participants supplied data for analysis; therefore the full scope of the program cannot be fully understood.
Another potential limitation is that the majority of the data used for analysis were provided solely by the case manager. The case manager was the primary point of contact with all participants, and the delivery of services among program participants varied. This could be attributed to a greater need of some participants versus others, or based on time constraints of the case manager. As a result, the data appear to be lacking for some participants more than others, and an explanation of the differences is not available. A more complete data set from all providers and an explanation of the differences among participants would allow for a better understanding of the programmatic impact.

**Definition of Terms**

The following terms are defined conceptually for the better understanding of the study:

*Intensity* – the number of contacts each participant has with component programs. This includes the number of contacts with the case manager, the number of Circle of Care meetings attended, and the number of contacts with partnering organizations. In this study, the intensity of programmatic services received was analyzed to determine if increased intensity had any impact on the outcomes of the participants.

*Duration* – the length of time enrolled in the program. In this study, the duration of programmatic services received was analyzed to determine if length of time in program had any impact on participant outcomes.

*Subsequent teen pregnancy* – in this study, subsequent pregnancies were only tracked for participants that were nineteen years old and younger. Once they reached the age of twenty, subsequent pregnancies were no longer tracked. This outcome was tracked
to determine if participants avoided subsequent pregnancies before reaching the age of twenty.

*Child Abuse and Neglect (CAN)* – the number of substantiated cases of child abuse and neglect were tracked for each participant from 2004-2008. This outcome was tracked to determine if participants avoided incidents of child abuse and neglect.

*Educational Attainment* – in this study, educational attainment included current enrollment in school or the completion of high school or a general education diploma (GED) for the entire target group. This outcome was tracked to determine if participants remained enrolled in school, completed high school or earned a GED.

**Summary**

Teen pregnancy is a chronic and costly problem in the United States, and specifically in Troup County, Georgia. Teen mothers are at a greater risk of not completing high school, of abusing and neglecting their children, and of becoming pregnant again during their teen years. The Circle of Care program was implemented to reduce the risk of these negative outcomes. The program offers intervention and prevention services to program participants to increase educational attainment, reduce child abuse and neglect, and to prevent subsequent teen pregnancies. The aim of this study is to evaluate the effectiveness of the Circle of Care program.

In the next chapter, a review of the relevant literature is undertaken. This chapter introduces the reader to the relevant issues and parses out the critical elements for empirical analysis designed to explore this relationship between participation in a teen repeat-pregnancy prevention program and life outcomes of program participants. This
literature review accomplishes three central tasks: 1) it explains the current crisis of teen pregnancy in the United States including behaviors and risks that relate to teen pregnancy; 2) it describes various intervention and prevention strategies that have been developed to target reducing the teen pregnancy rate; and 3) hypotheses based on this information are developed, which can be tested using the available data. In the concluding section of Chapter Two, these hypotheses are proposed and discussed. The data utilized to test these hypotheses and the methods of analysis used are described in extensive detail in Chapter Three.

Chapter Four reports the results of the data analyses. Initially a descriptive portrait is presented of the Circle of Care participants that received case management services at any time from 2006 through 2008. In addition, the impact of program participation on desired outcomes are evaluated, including educational attainment, reducing subsequent teen pregnancies and reducing the incidents of child abuse and neglect. Finally, the outcomes of program participants are compared to the same outcomes of teen mothers nationally that do not receive the intervention and prevention services of Circle of Care.

Further analysis investigates if there is a relationship between the intensity and duration of program services on participant outcomes. Additionally, specific indicators including age at the birth of their first child and participant living situation are evaluated to determine if they are predictors for program outcomes. Finally, the concluding Chapter Five includes a summary of the research findings from the previous chapter, linking these findings to the existing body of theory on teen pregnancy prevention programs, and providing suggestions for the direction of future research.
CHAPTER II
REVIEW OF THE LITERATURE

Review of Teen Pregnancy
Ratcs of teen pregnancy and teen childbirth in the United States are higher than any other industrialized nation (Singh & Darroch, 2000). It is estimated that almost one third of sexually experienced adolescent girls and fourteen percent of all teenage girls have reported being involved in a pregnancy (NCPTP, 2006b). Approximately eighty-two percent of these pregnancies are unplanned, and they account for twenty percent of all unintended pregnancies annually (Finer & Henshaw, 2006).

Teen Pregnancy Rates
Nationally, teen pregnancy rates rose in the United States in the 1980’s, peaking in 1990, and then decreasing through the remainder of that decade. At its highest level, the teen pregnancy rate was 116.8 per 1,000. By 2004, the rate decreased to 41.1 per 1,000. However, in 2006, the teen birth rate increased for the first time in fifteen years, which indicates the teen pregnancy rate may have increased as well (Hamilton et al, 2006). In 2006, 435,427 births occurred to mothers aged 15-19 years, which was a birth rate of 41.9 per 1,000 women in this age group, (Hamilton et al, 2006).
Within the state of Georgia, teen pregnancy rates are similar to those for the U.S. as a whole. In 2004, the U.S. rate was 41.1, while the rate in Georgia was 39.4. The rates in Troup County, Georgia are typically higher than that of the state of Georgia and the United States. The teen pregnancy rate in 2004 in Troup County was 52 per 1,000. The most recent data (2006) showed that Troup County had a teen pregnancy rate of 51.9 per 1,000 which was significantly higher than the state of Georgia rate of 37.7 per 1,000. As a result, Troup County ranks of 100th out of 159 counties for teen pregnancies for ages of 15-17 (Kids Count, 2008).

A similar trend can be seen regarding the teen birth rate. In 2006, as noted previously, the national teen birth rate was 41.9 per 1,000. In the state of Georgia, the rate was higher at 54.1 per 1,000. In Troup County the rate was still higher at 65.4 per 1,000. This gave Troup County the ranking of 49th out of 159 counties (Kids Count Fact Sheet, 2008). At first glance, there appears to be a discrepancy between the ranking of the state of Georgia regarding teen pregnancies (100th out of 159) and teen births (49th out of 159). However, this is not the case. The rate of teen pregnancies is consistently higher than the teen birth rate as pregnancies can end early due to intended terminations (abortion) or unintentional terminations (miscarriages). The difference between the rankings implies that there is a high termination rate, either intentional or unintentional, among teen pregnancies in Troup County.

**Hardships Related to Teen Childbirth**

Teens that become pregnant and have children are more likely to face economic, personal and social hardships. Teen mothers are less likely to complete high school as
compared to those that delay childbirth. Teen motherhood is the leading cause of why teenage girls drop out of school (NASBE, 1998). It is estimated that only 40% of teen mothers age seventeen and younger complete high school, and approximately 63% of teens ages eighteen and nineteen complete high school (Hoffman, 2006).

In 2005, 23.8% of babies born in Troup County were born to teen mothers with less than twelve years of education (Kids Count, 2008). Over the course of the teen mother’s life, this lack of educational attainment can significantly impact their earning potential. In 2005, the average annual salary for a high school dropout was $17,299. For those that completed high school, the average annual salary was $26,933, a difference of $9,634 per year (US Census, 2006). Of course, the difference is even greater when compared to those with post-secondary degrees.

In addition to personal economics, it has been estimated that a high school dropout will cost the United States approximately $260,000 in lost tax revenue over their lifetime (Rouse, 2005). In 2004, teen child bearing cost taxpayers (federal, state and local) $344 million dollars in lost tax revenue. In Georgia, each teen that delivers a child costs $3,562 annually (NCPTP, 2006a). Nationally this equates to over nine billion dollars each year. These figures are based on the participation of the children of teen mothers in public health care systems, the child welfare system including foster care and child protective services, and the criminal justice system, and parental participation in public assistance programs (NCPTP, 2006a). These estimates also include lost tax revenue of the children of teen mothers when they become adults, reduced earning
capacity for teen mothers and their partners, as well as the decreased educational attainment of teen mothers and their children (NCPTP, 2006a).

Not only will completing high school allow teen mothers increased financial stability, they will see additional benefits as well. High school graduates can generally expect to live longer, healthier lives which are less dependent on government aid and health care (Muennig, 2005). It is estimated that nearly 80% of teen mothers receive some form of public assistance (Acs & Koball, 2003). Increasing the high school completion rate among teen mothers will result in reduced health care costs for both the individual and society. In addition, high school graduates are more likely to raise healthier, better educated children. In fact, children of high school graduates are more likely to graduate from high school themselves (Wolfe & Havemen, 2002).

In addition to educational attainment and decreased earning potential, teen mothers are more likely to abuse or neglect their children (George & Lee, 1997). Teen mothers may be lacking in child development knowledge which ultimately may influence abusive behavior towards their children (Britner & Reppucci, 1997). In 2006, the rate of substantiated child abuse and neglect cases in the state of Georgia was 16.1 per 1,000. The rate in Troup County was significantly higher at 30.9 per 1,000 (Kids Count, 2008). The increased rates in Troup County could be directly related to the high incidence of teen childbirths.

In addition to increased rates of child abuse and neglect, the children of teen mothers are more likely to be lower birth weight than the rest of their cohort. A baby is said to have low birth weight when they weigh less than five and a half pounds at birth
Low birth weight results in increased health problems among these children, including underdeveloped lungs and other organ systems, anemia and feeding problems (Stevens, 2002; Wolfe & Perozek, 1997). The children are also at a greater risk for cognitive, behavioral and academic difficulties than children of older parents (Sims & Luster, 2002).

Teen mothers are also at a greater risk of having a subsequent pregnancy before they reach the age of twenty (Kalmuss & Namerow, 1994). Studies have shown that 25% of teen mothers have a second child before they are twenty years old. This is most commonly observed among African Americans, Hispanics, and impoverished Caucasian females (Kalmuss & Namerow, 1994). A longitudinal study conducted by Manlove, Mariner and Papillo followed a group of teen mothers for six years to determine factors that result in a subsequent teen birth. Data from the National Education Longitudinal Study of 1988 on eighth grade students were used. The students were interviewed in 1988, and then every two years until 1994. Manlove, Mariner and Papillo determined that positive factors that help delay or prevent a second birth include staying in school, living at home with parents, employment activities, and completing high school or GED (Manlove et al, 2000).

In 2004, Georgia ranked second out of fifty states and the District of Columbia in the percentage of teen births that are repeat births (Schelar et al, 2007). Trend data from Georgia reveal that the percentage of second births to teen mothers remains consistent around 20%; however, the rate in Troup County has been as high as 28.6% (Kids Count, 2008).
For those that have closely spaced subsequent births, life opportunities are significantly impaired versus when they had only one child (Schelar et al, 2007). Women that have more than one child during their teenage years are at a greater risk of poverty and federal assistance dependence later in life. Their ability to obtain employment and advance in their jobs is greatly reduced, trapping them in impoverished, low-waged or minimal wage jobs (Manlove et al, 2000). Studies have shown that teen mothers who are able to complete high school or earn a GED reduce the risk of a subsequent pregnancy during their teenage years (Manlove et al, 2000).

**Contributing Factors Associated with Teen Pregnancy**

There are many contributing factors associated with teen pregnancy and childbearing, including risk, social and behavioral factors. Risk factors may include the fact that teens are becoming more physically mature at younger ages, allowing them to become pregnant at an earlier age (Manlove, 2002). Additional risk factors could include the use of drugs and alcohol, lacking proper reproductive health education and knowledge, and having risky behaviors and attitudes. Teens that have been sexually abused or been party to non-voluntary sexual experiences have an increased risk of becoming pregnant (Manlove, 2002).

Behavioral factors include teenage sexual activity and the use of contraceptives (Sullivan, 1993). Trends in teen sexual activity show that in 2002, approximately 25% of never-married teenagers had sexual intercourse before the age of sixteen. By the time the teens reached eighteen years of age, more than half of them had had sexual intercourse
(Terry-Humen et al, 2006). However, trend data from 1998-2002 indicates that the percent of sexually active teens is decreasing (Terry-Humen et al, 2006).

The use of contraceptives is an additional behavioral factor associated with teen pregnancy. The only way to completely prevent teen pregnancy is practice abstinence; however, the proper use of contraceptives can reduce the likelihood of becoming pregnant (Franzetta et al, 2006). The percentage of teens that are using contraceptives has increased. Among females between the ages of fifteen and nineteen, the use of a condom during their first sexual intercourse experience increased from 60% in 1992 to 68% in 2002. Similarly, males increased condom use at first sex by ten percent over the same period (Franzetta et al, 2006). Though contraceptive use has increased, teens use contraceptives inconsistently, increasing their likelihood of a teenage pregnancy (Franzetta et al, 2006).

Social factors that may contribute to teen pregnancy include household economic standing and their home life situation (Rosengrad et al, 2006; Sullivan, 1993). Teens that become pregnant are more commonly from single-parent and low-income households (Sullivan, 1993). It is thought that disadvantageous teens are not planning for their future as they feel that they have limited options (Sullivan, 1993). Their parents may have low education levels as well (Manlove, 2002). Teen mothers may have a sibling or friend that is sexually active or pregnant as well (Manlove, 2002). Additionally, teens may pursue motherhood to fill a void that they are experiencing at home. Studies indicate that some teens have babies so that they will have someone who loves them (Rosengrad et al, 2006). Additionally, some teenagers state that they want something to possess, or that
they don’t recognize any of the disadvantages associated with teen motherhood (Rosengrad et al, 2006).

There are multiple protective factors that can reduce the rate of teen pregnancy. Engaging teens in school, church or religious activities reduces idle time and promotes the development of goals (Manlove, 2002). Additionally, teens that have friends with high educational aspirations are more likely to refrain from getting pregnant (Manlove et al, 2001). Parenting also plays a significant role in reducing teen pregnancy rates. Parents that communicate with their children, providing structure and guidance and that are involved in their child’s social and academic lives tend to have lower rates of teen pregnancy. Overall, a positive social environment may promote healthy behaviors among teens, reducing teen pregnancy (Nitz, 1999).

**Intervention Programs**

Intervention programs commonly aim to increase protective factors with the goal of reducing the teens risk for pregnancy and reducing the impact that the pregnancy will have on their long-term life outcomes. Intervention programs work with kids before they become pregnant to educate them about the risks and how to protect themselves. These may include curriculum-based sexuality education programs that promote abstinence or contraceptive use, early childhood programs including high quality child care and pre-school, community service learning, and youth development approaches (Manlove, 2002). Each type of intervention offers specific information in a different format.

Curriculum based programs are usually short-term (hours) and address delaying sex and using contraceptives. Many programs promote abstinence as the only
intervention strategy. These programs have been shown to increase short-term knowledge regarding pregnancy prevention, but the long-term impact is less understood (Nitz, 1999).

Early childhood investments are longer-term programs and the impact is seen years later. They focus on investing in high quality care and education early to delay childbearing until adulthood (Manlove et al, 2001). Community volunteer service learning programs generally last a year and include classroom discussions and community volunteer experience. They can influence educational outcomes, reduce sexual activity and teen pregnancy while not focusing on sexual behavior (Manlove et al, 2001). Finally, youth development programs include multiple components such as sexuality education and youth development activities. These are often multi-year, intensive programs which may have the strongest and most long-term outcomes (Manlove, 2002).

Intervention programs also work with teens after they have become pregnant, arming them with parenting skills, resources to stay in school, supplying them with contraceptives and education to prevent them from becoming pregnant again during their teen years (Corcoran & Pillia, 2007). These programs may offer the teens an avenue of stability and support, providing them with the resources and opportunities to stay connected and receive services to prevent subsequent pregnancies. Increased intensity and duration of these program services is thought to result in a reduction of subsequent pregnancies among teen mothers; however, data regarding these findings are limited (Sadler et al, 2007). Programs can be community based or school based, provided by both
the private and public sector. Minimal outcome data are available regarding the impact of intervention programs on preventing subsequent pregnancies.

Sadler et al (2007) conducted a study to assess teen mothers and their children who attend an urban high school. The school offers a parent support program and a school-based child care center. Sixty-five adolescent mothers enrolled in the program were interviewed, surveyed and assessed. Specific indicators were reviewed for both the mother and her child. They evaluated self-esteem, depressive symptoms, social stressors and support, self-perceived parental competence, parent-child teaching interactions, subsequent childbearing and educational attainment for the mothers. For the children, developmental assessments and health outcomes were reviewed. Participants showed good rates of educational attainment, positive mother-child interactions, low rates of subsequent births and positive child health indicators (Sadler et al, 2007).

Additional research indicates that on average, intervention programs have the largest effects on pregnancy prevention for participants that have been receiving services for at least nineteen months. Longer-term interventions do not seem to have as great of an effect (Corcoran & Pillia, 2007). Sims and Luster (2002) conducted a study to determine if teen mothers that were randomly selected to receive additional family support services had lower rates of subsequent pregnancies than girls who received fewer services. This study focused on subsequent pregnancies and births in the twenty-four month period following birth of first child. Ninety-nine adolescent teen mothers were randomly assigned to a control group and comparison group. The comparison group received weekly visits from a family advocate while the control group was contacted via phone
and email. Analysis did not reveal any differences in the number of subsequent pregnancies between groups (Sims and Luster, 2002).

Nitz (1999) evaluated multiple intervention programs and found specific characteristics common among effective intervention programs. Effective programs are commonly based on theories of behavior change. They focus on the sexual behaviors that lead to pregnancy, promoting contraceptive use and prevention techniques. Effective programs are culturally sensitive and developmentally suitable to participants. They are of an appropriate length for the teens to acquire the skills being taught, and need to employ multiple instructional techniques to ensure the message is understood clearly (Nitz, 1999).

**The Circle of Care Program**

Based on the elevated teen pregnancy and subsequent teen pregnancy rates in Troup County, Georgia, the Troup Family Connection Authority and the Georgia Children’s Trust Fund opted to develop and implement a program to reduce the subsequent teen pregnancy rate within the county. The Circle of Care program was developed in 1997 through the collaborative efforts of multiple community partner organizations. These organizations included the local school system, the Troup County Department of Family and Children Services (DFCS), District Four Public Health, Troup Family Connection Authority, the local teen clinic, the local hospital and other organizations (Twin Cedars, 2008).

The Circle of Care program works with pregnant and parenting teens and their families to enhance quality of life. A case manager provides information, education and
support to the teens to enable them to stay in school, empower them to prevent subsequent pregnancies and develop the necessary skills they will need to be good parents (Twin Cedars, 2008). The Circle of Care program provides both intervention and prevention services to the participants.

The intervention services begin with the identification, referral, and delivery of services to teen families through partner agencies. These intervention programs are designed to work together to reduce the likelihood of repeat pregnancy and improve educational outcomes. These programs also address child abuse and neglect prevention through parent education and home visitation. Parent support groups are an additional component that strengthens families and helps prevent child maltreatment.

Participants may be referred to the program from a variety of sources, including their school, physician, the Department of Family and Children Services, family, friends, or by self-referral. The program receives enough funding to serve up to thirty teen mothers at one time, and acceptance into the program is based on the availability of space and the imminent need of the pregnant or parenting teen.

**Services Provided**

Participants in the Circle of Care program receive multiple services, including case management, a family assessment, parenting classes, parent-child group activities, crisis intervention, home visits from the case manager, family planning assistance, counseling, and services from the teen health clinic and DFCS, as shown in Figure 2.1. Below this figure is a description of the intake process and further detail on each service.
Figure 2.1
Case Management Services Provided to Circle of Care Participants

The initial activity occurs when the case manager interviews each potential participant, conducts a needs assessment, and completes an intake form to determine if the person is eligible to participate in the program. The intake form requests the following information: demographics on the mother and child (if born to date), current school and employment status, pregnancy information including term of delivery, prenatal treatment, health of baby at delivery, drug and alcohol use during pregnancy, etc. In addition, the intake form requests information regarding any current services the teen is receiving, and any referrals or services the teen or her child may need.

Following initial intake into the program, the case manager contacts and follows up with each participant on an as-needed basis determined by individual needs and the goals laid out in their case plan. The case manager logs all contacts with each participant.
in a case notes document which tracks time spent with the participant, reason for the contact, any referrals that were made and any notes about the contact.

The case manager schedules bimonthly meetings that all participants and their children are invited to attend. The case manager provides transportation to those that need it, and a meal is offered. The meetings generally include a guest speaker that discusses a topic important to the teen mothers and their children. Past topics include car-seat installation and safety, good dental care, voter registration, and continuing education information from the local technical college. The meetings allow time for the participants to update the group on their own personal experiences and allow the participants to share suggestions about how to deal with these events.

**Component Programs**

Case Management - The primary focus of the case manager is to ensure that the teen mother stays in school, re-enrolls in school, or re-enters school after her baby is born. The key to the educational attainment of these mothers is this focus on school completion. An essential need for the educational attainment of the mother is having stable childcare for the child or children. The case manager assists the mothers with obtaining child care through family members or within the community.

Family Assessment - The family assessment determines the specific needs of each individual family. These needs may include childcare, transportation to doctor appointments, remediation, housing, financial support, employment, etc. When the assessment is completed the case manager helps the teen mother develop her own personal goal plan that has sequential, attainable goals for the family.
Parents as Teachers (PAT) Parenting Classes - The parenting classes use the “Born to Learn” curriculum which was designed specifically for teen mothers (Parents as Teachers, 2008). These classes are held monthly and child care is provided. Various community volunteers and agencies are involved in the delivery of these classes. The classes focus on child development, “Better Brains for Babies,” and other important parenting skills such as behavior management and family systems.

Home Visits - The case manager conducts home visits if the assessment indicates that closer monitoring of the teen mother and her baby is necessary. This may be due to an unstable living situation, family members who live with the teen, or suspected evidence of domestic violence, child abuse or child neglect.

Family Planning - One of the program goals is to reduce subsequent pregnancies for the teen mother. The case manager is able to refer the teen mothers to the teen clinic, called “The Spot,” or to the county health department. The Spot is a division of the Troup County Health Department that offers teens the ability to obtain autonomous medical services. The services offered include: abstinence training, contraceptive services, pregnancy tests, STD exams, education, and treatment as well as pelvic exams. When the participants reach the age of twenty, they are no longer eligible to receive services from The Spot. The Spot provides the case manager with the number of contacts each participant has had with the clinic and the services they received during the visit. Many of the visits are as a result of a referral made by the program coordinator.
Conclusion

As stated previously, research is limited regarding the effect of teen pregnancy intervention programs on the outcomes of teen mothers. The Circle of Care program provides intensive case management services to pregnant and parenting teens to promote increased educational attainment, decrease the rate of child abuse and neglect among participants and reduce the incidence of subsequent teen child birth. The program services the participants received and the analysis techniques used to evaluate their effect will be described in the next chapter.
CHAPTER III

METHODS

The primary objective of this study is to examine the rate of subsequent pregnancy, educational attainment, and the number of substantiated cases of child abuse and neglect of teen mothers that have been participants in the Circle of Care program from 2006-2008. To accomplish this goal, Circle of Care participants were tracked for multiple years to determine if program involvement positively impacted educational attainment, reduced child abuse and neglect, and prevented subsequent teen pregnancies. The data that were analyzed includes an existing data set supplied by the Center for Community Studies, Inc. The data set was made available in an Excel spreadsheet and includes demographics, intensity and duration of interactions with the Circle of Care case manager, as well as referrals and services the participants received from the case manager and partner agencies. These data are described in further detail in the next section.

The data set was compiled by the Center for Community Studies, Inc. using the following sources: 1) Circle of Care Intake Form; 2) Circle of Care Case Notes Form; 3) Circle of Care Meeting Attendance Logs; 4) Troup County Department of Family and Children Services Report of Substantiated Cases of Child Abuse and Neglect; and 5) Program Participant Service Log from The Spot. The data set does not include any
identifying information for the participants or their children, thus all information remains completely anonymous to the researcher.

Data

Circle of Care Intake Form

The Circle of Care Intake Form was administered to all participants upon acceptance into the program. A copy of the intake form is included in Appendix A. The data used for this analysis were drawn from participants that received case management services from 2006-2008. Participants may have been accepted into the program in earlier years; however, if they were receiving services at any time from 2006-2008, they were included in the data set.

The intake form requests demographic information, school enrollment status, employment status, services currently receiving, program participation, health of the participant and her child, the participant’s current method of birth control, any referrals needed by the participant and any referrals the case manager made for the participants.

Demographics include the date the participant entered the program, age of the participant at the birth of her first child, date of birth, marital status, ethnicity, participant living situation, as well as data about their pregnancy. This includes whether or not the child has been born to date, the gender of the child, the weight of the child at birth, and the trimester in which the baby was delivered.

School information includes whether the participant was enrolled in school, which school they attended or are currently attending, their highest grade level completed, and
history of suspensions. If they were not currently enrolled in school, the reason for dropping out was requested. Employment information included current employment status, the number of hours the participant works each week, any problems they may be having at their job, and their family income.

Services the participant may have received include financial assistance such as Temporary Assistance for Needy Families (TANF), child support enforcement, Women Infants and Children (WIC), educational services such as literacy classes or General Education Diploma (GED) classes, services from the Troup County Health Department, job training, or the juvenile court. Program participation may include Communities in Schools (CIS), the Boys and Girls Club, Child and Family Advocacy Parenting Classes, school based or church activities, and civic organizations.

Data regarding participant health was gathered on the intake form, and includes the following: 1) complications during pregnancy; 2) use of alcohol, tobacco or other drugs at the time they became pregnant or throughout the pregnancy; 3) health insurance status; 4) prenatal care during their pregnancy; 5) whether or not they received a post-partum check-up; 6) total number of pregnancies, miscarriages and/or abortions they have had; 7) and whether or not they breast fed. Additionally, the participant was asked about the current method of birth control being used at the time of intake.

After reviewing the Circle of Care Intake form, the case manager may make referrals for the participant to other partnering organizations in Troup County. These referrals may include the Department of Family and Children Services (DFCS) for family planning, child care assistance, or parenting classes. Additional referrals may include the
Pregnancy Care Center, GED classes, Communities in Schools (CIS) classes, Troup County Health Department, the disabilities or rehabilitation community, health or dental care, family counseling, WIC, as well as any other services needed by the mother or her child.

**Circle of Care Case Notes Form**

Each time the case manager had contact with a participant the interaction was logged on a Case Notes form. A copy of the case notes form is included in Appendix B. These interactions may have included phone conversations, home visits, providing transportation to doctor appointments or job interviews as well as other exchanges. During these interactions, case management was provided. Additional services include Parent Education Classes, a child-family assessment, crisis intervention management, information and referrals, follow-up services, mentoring, GED assistance, and job referrals. Each interaction is based on the needs of the teen mother and her child at that time. The number of visits with the case manager was tracked including the average contact time of the meetings.

**Circle of Care Meeting Attendance Logs**

In addition to providing the aforementioned services, the case manager also arranged bi-weekly group meetings for the participants and their children. The group met at a central location at a predetermined time with dinner and child care provided. A guest speaker from the community attends in order to educate the participants on topics that include voter registration, dental care, child seat safety, proper nutrition, appropriate
hygiene practices, as well as many other topics. The case manager requires that each participant sign in for the meeting. The number of meetings that the participants attended was available for 2006, 2007 and 2008.

Department of Family and Children Services Report of Substantiated Cases of Child Abuse and Neglect

Teen mothers are much more likely to raise their children in a single parent household (Britner & Reppucci, 1997; Wallace, 2002). Studies have found that children in single parent families had a 77% greater risk of being harmed by physical abuse and an 87% greater risk of being harmed by physical neglect (Healthier You, 2008). Data regarding the incidents of child abuse and neglect among program participants were provided by the Troup County Department of Family and Children Services. Data include the number of substantiated cases of child abuse and substantiated cases of child neglect. Child neglect was further classified into inadequate food, clothing and housing or inadequate supervision. The data was available for all program participants, for the years 2004 to 2008.

Program Participant Service Log from The Spot

The Spot is a local teen health clinic that is a subsidiary of the Troup County Health Department. The Spot serves only patients age nineteen or younger, and all services are confidential. Circle of Care participants may have been referred to The Spot to receive services by the case manager, or a teen may go to The Spot for health care and then be referred to Circle of Care. The Spot tracked the services delivered to Circle of Care participants annually. They reported the number of times each month that a
participant received abstinence training and education, contraceptive services, pregnancy tests, sexually transmitted disease exams and education, and women's health exams or pelvic exams for non-pregnant clients.

Unit of Analysis

This study examines the effect of intensity and duration of program participation of teen mothers participating in the Circle of Care program in Troup County, Georgia. The unit of analysis for this study was the individual teen mothers. In the following section, the variables utilized in the analyses are described, including the dependent and independent variables.

Measurement of Variables

Dependent Variables

The dependent variables examined in the statistical analyses include: 1) Number of Repeat Pregnancies; 2) Number of Substantiated Cases of Child Abuse 2004-2008; 3) Number of Substantiated Cases of Child Neglect (2004-2008); and 4) Educational Attainment of Program Participants. Each of these dependent variables is described below.

Number of Repeat Pregnancies

The actual number of subsequent teen pregnancies were reported for each participant from 2006-2008. The goal of the Circle of Care Program is to provide
pregnant and parenting teen mothers information and services to enable them to make better decisions regarding their reproductive health.

Number of Substantiated Cases of Child Abuse and Neglect 2004-2008

The actual number of substantiated cases of child abuse and child neglect were supplied for each participant from 2004-2008. Teen parents are at a greater risk of abusing or neglecting their children, and the Circle of Care Program provides education and interventions designed to prevent the occurrence of child abuse and neglect.

Educational Attainment of Program Participants.

This measure refers to program participants that have either: a) re-enrolled in high school with the goal of completing high school; b) completed high school; c) earned a General Education Degree (GED); or d) dropped out of high school. It is estimated that only forty percent of teen mothers receive a high school diploma (Hoffman, 2006), so the Circle of Care Program offers services and referrals to ensure all participants have the opportunity to complete high school.

Independent Variables

The independent variables utilized in the statistical analyses include: 1) Circle of Care Program Participation; 2) Intensity of Program Participation (Number of Contacts with Case Manager; 3) Duration of Program Participation (Length of Time in Program); 4) Age of Participant at Birth of First Child; and 5) Participant’s Living Situation. In the analytical strategy section below, the location of these variables in the analyses is
explained. The following section will describe the independent variables utilized within each of these broad categories.

**Circle of Care Program Participation**

The goal of the Circle of Care Program is to prevent subsequent pregnancies among program participants during their teen years, to promote educational attainment and to reduce the incidence of child abuse and neglect. Program participants were compared and contrasted with the general population of teen mothers in the United States to determine if there has been a programmatic impact on these outcomes as a result of participation in Circle of Care.

*Intensity of Program Participation (Number of Contacts with Case Manager)*

Increased intensity of program participation should result in more positive outcomes for program participants. This is a count of the actual number of visits each participant had with the case manager over the course of each year.

*Duration of Program Participation (Length of Time in Program)*

Increased duration of program participation should result in more positive outcomes for program participants. This includes the number of months participants were enrolled in the program.
Age of Participant at Birth of First Child

The age of the participant at the birth of their first child may affect their outcomes. The group was divided into groups based on their age to determine if their age at the birth of their first child had an impact on their outcomes.

Participant Living Situation

Program participants may live in the following situations: With their parent(s), with a friend, in a group home for teen mothers, or on their own. Living situations were analyzed to determine if they were related to participant outcomes.

Statistical Analysis

The analysis techniques are described below. Following is one table which lists the research questions to be addressed, the measured outcomes, the related independent and dependant variable, and the proposed statistical procedure that will be used.
Table 3.1
Research Questions, Outcomes, Variables and Analyses

<table>
<thead>
<tr>
<th>Research Question</th>
<th>Measured Outcome</th>
<th>Independent Variable</th>
<th>Dependent Variable</th>
<th>Statistical Analysis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Does program participation impact educational attainment?</td>
<td>Educational Attainment</td>
<td>Program Participation</td>
<td>Educational Attainment</td>
<td>Descriptive statistics including counts, frequency, and cross-tabulations</td>
</tr>
<tr>
<td>Does program participation impact the repeat teen pregnancy rate?</td>
<td>Number of Repeat Teen Pregnancies among CoC Participants</td>
<td>Program Participation</td>
<td>Repeat Teen Pregnancies</td>
<td>Descriptive statistics including counts, frequency, and cross-tabulations</td>
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<tr>
<td>Does program participation impact the rates of child abuse and neglect among CoC participants?</td>
<td>Number of Substantiated Cases of Child Abuse and Neglect</td>
<td>Program Participation</td>
<td>Substantiated Cases of Child Abuse and Neglect</td>
<td>Descriptive statistics including counts, frequency, and cross-tabulations</td>
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## Table 3.1 (continued)

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<thead>
<tr>
<th>Research Question</th>
<th>Measured Outcome</th>
<th>Independent Variable</th>
<th>Dependent Variable</th>
<th>Statistical Analysis</th>
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<tr>
<td><strong>Do CoC participants have increased educational attainment when compared to the general population of teen mothers?</strong></td>
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<td>Descriptive statistics including counts, frequency, and cross-tabulations</td>
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<td>Number of Repeat Teen Pregnancies among CoC Participants</td>
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<td>Repeat Teen Pregnancies</td>
<td>Single-sample t test of CoC participant compared to the general population of teen mothers for each dependent variable</td>
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<td><strong>Do CoC participants have fewer substantiated cases of child abuse and neglect than the general population of teen mothers?</strong></td>
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<td>Substantiated Cases of Child Abuse and Neglect</td>
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<td>Research Question</td>
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<tr>
<td>Does intensity of the delivery of CoC program services impact educational attainment of participants?</td>
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<td>Number of Contacts with Case Manger</td>
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<td>Correlation coefficients</td>
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<td>Chi-Square</td>
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</tbody>
</table>
| Does participant age at the birth of her first child impact educational attainment? | Educational Attainment | Age of participants at the birth of their first child | Educational Attainment | Correlation coefficients  
Chi-Square |
| Does participant age at the birth of her first child impact the number of subsequent teen pregnancies? | Number of Repeat Teen Pregnancies among CoC Participants | Age of participants at the birth of their first child | Repeat Teen Pregnancies | |
| Does participant age at the birth of her first child impact the number of substantiated cases of child abuse and neglect? | Number of Substantiated Cases of Child Abuse and Neglect | Age of participants at the birth of their first child | Substantiated Cases of Child Abuse and Neglect | |
Table 3.1 (continued)

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Chapter Summary

This chapter presented a description of the data sources and methodological procedures that were implemented. First, the data sources used to construct the final dataset were described. Second, a description of the unit of analysis was provided. In the next two sections, the dependent variables and independent variables used in the statistical analyses were described. Finally, the analytical strategy was presented which listed each research question, the related independent and dependent variables, and the specific statistical analysis techniques used to answer these questions. This multi-step analytical strategy addresses the substantive and theoretical issues discussed above by
allowing for a better understanding of the relationship between the delivery of case management services to at-risk teens and their outcomes as a result of the intervention through the use of descriptive and inferential statistics.
CHAPTER IV
RESULTS

Demographic Results

Demographic data in Table 4.1 show that there were sixty-four teen mothers ranging in ages from thirteen to 21.9 years old. Participants over the age of twenty had a child and enrolled in the program while they were a teenager. A few participants continued to stay involved with Circle of Care after they age out of the program. The average age of a participant at intake was 16.9 years old. The participants that received services from 2006 through 2008 enrolled in the program at some point between the years 2002 and 2008.

Forty of the participants were African American (62.5%). Caucasian participants made up 21.9% of the group; 7.8% of the participants were Hispanic or Latino; 3.1% were bi-racial and 4.7% were ‘Other’. Marital status at intake was available for thirty-four participants, of whom thirty-two were unmarried (94.1%) and two were married (5.9%).

Over 60% reported living with a parent or guardian, 14.1% reported living at a group home for teen mothers, and the remaining 24.2% of the participants lived with family members or friends. Over 57% of the participants lived in rental units, 14.3%
lived in public housing, and the remaining participants listed “other” as their living situation. All of the participants received case management services from the Circle of Care case manager.

Participants were referred to Circle of Care from various sources. The majority of the participants were self-referred (35.5%), community agencies referred nine participants (14.5%), the local schools referred five participants (8.1%), family members referred one participant (1.6%), and the remaining twenty-two referrals (35.5%) were from other sources.

School enrollment status at intake was available for forty-nine participants. Thirty-six participants were enrolled in school (73.5%), and the remaining thirteen participants were not enrolled. Of the participants that were not enrolled, seven failed or dropped out of school (53.8%), two were too old for their grade level (15.4%), two had graduated (15.4%), and two listed other reasons for not being enrolled (15.4%).

The highest grade level completed at intake ranged from seventh grade to twelfth grade. There was one seventh grade student (2.1%), six eighth grade students (12.5%), eleven ninth grade students (22.9%), fourteen tenth grade students (29.2%), six eleventh grade students (12.5%), and ten twelfth grade students (20.8%).

The mean length of participation in the program was 22.8 months and the median length of participation was eighteen months. The maximum length of enrollment was six years and the minimum was one month. Over the period under consideration, thirty-one participants exited the program while thirty-three participants continue to receive services
in 2009. Reasons for exit from the program include successfully completing the service plan (9.4%), moving (15.6%), placement change (10.9%), and non-compliance (14.1%).

Table 4.1

Demographics of Circle of Care Participants

<table>
<thead>
<tr>
<th>Variable</th>
<th>Constant</th>
<th>Number (N)</th>
<th>Percent (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (N=64)</td>
<td>13</td>
<td>1</td>
<td>1.6%</td>
</tr>
<tr>
<td></td>
<td>14</td>
<td>7</td>
<td>10.9%</td>
</tr>
<tr>
<td></td>
<td>15</td>
<td>12</td>
<td>18.8%</td>
</tr>
<tr>
<td></td>
<td>16</td>
<td>15</td>
<td>23.4%</td>
</tr>
<tr>
<td></td>
<td>17</td>
<td>9</td>
<td>14.1%</td>
</tr>
<tr>
<td></td>
<td>18</td>
<td>11</td>
<td>17.2%</td>
</tr>
<tr>
<td></td>
<td>19</td>
<td>5</td>
<td>7.8%</td>
</tr>
<tr>
<td></td>
<td>20</td>
<td>4</td>
<td>6.2%</td>
</tr>
<tr>
<td>Gender (N=64)</td>
<td>Male</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>64</td>
<td>100%</td>
</tr>
<tr>
<td>Ethnicity (N=64)</td>
<td>African American</td>
<td>40</td>
<td>62.5%</td>
</tr>
<tr>
<td></td>
<td>Caucasian</td>
<td>14</td>
<td>21.9%</td>
</tr>
<tr>
<td></td>
<td>Hispanic</td>
<td>5</td>
<td>7.8%</td>
</tr>
<tr>
<td></td>
<td>Bi-Racial</td>
<td>2</td>
<td>3.1%</td>
</tr>
<tr>
<td></td>
<td>Other</td>
<td>3</td>
<td>4.7%</td>
</tr>
<tr>
<td>Marital Status (N=34)</td>
<td>Married</td>
<td>2</td>
<td>5.9%</td>
</tr>
<tr>
<td></td>
<td>Never Been Married</td>
<td>32</td>
<td>94.1%</td>
</tr>
<tr>
<td>Living Situation (N=60)</td>
<td>Parent or Guardian</td>
<td>37</td>
<td>61.7%</td>
</tr>
<tr>
<td></td>
<td>Group Home</td>
<td>9</td>
<td>14.1%</td>
</tr>
<tr>
<td></td>
<td>Family or Friends</td>
<td>14</td>
<td>24.2%</td>
</tr>
<tr>
<td>Variable</td>
<td>Constant</td>
<td>Number (N)</td>
<td>Percent (%)</td>
</tr>
<tr>
<td>---------------------------</td>
<td>----------</td>
<td>------------</td>
<td>-------------</td>
</tr>
<tr>
<td>Year of Intake (N=64)</td>
<td>2002</td>
<td>2</td>
<td>3.1%</td>
</tr>
<tr>
<td></td>
<td>2003</td>
<td>4</td>
<td>6.3%</td>
</tr>
<tr>
<td></td>
<td>2004</td>
<td>9</td>
<td>14.1%</td>
</tr>
<tr>
<td></td>
<td>2005</td>
<td>13</td>
<td>20.3%</td>
</tr>
<tr>
<td></td>
<td>2006</td>
<td>10</td>
<td>15.6%</td>
</tr>
<tr>
<td></td>
<td>2007</td>
<td>13</td>
<td>20.3%</td>
</tr>
<tr>
<td></td>
<td>2008</td>
<td>13</td>
<td>20.3%</td>
</tr>
<tr>
<td>Type of Housing (N=35)</td>
<td>Rental</td>
<td>20</td>
<td>57.1%</td>
</tr>
<tr>
<td></td>
<td>Own</td>
<td>2</td>
<td>5.7%</td>
</tr>
<tr>
<td></td>
<td>Public Housing</td>
<td>5</td>
<td>14.3%</td>
</tr>
<tr>
<td></td>
<td>Other</td>
<td>8</td>
<td>22.9%</td>
</tr>
<tr>
<td>Referral Source (N=62)</td>
<td>Self</td>
<td>22</td>
<td>35.5%</td>
</tr>
<tr>
<td></td>
<td>School</td>
<td>5</td>
<td>8.1%</td>
</tr>
<tr>
<td></td>
<td>Family</td>
<td>1</td>
<td>1.6%</td>
</tr>
<tr>
<td></td>
<td>Community Agency</td>
<td>9</td>
<td>14.5%</td>
</tr>
<tr>
<td></td>
<td>Other</td>
<td>22</td>
<td>35.5%</td>
</tr>
<tr>
<td>School Enrollment at Intake (N=49)</td>
<td>Yes</td>
<td>36</td>
<td>73.5%</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>13</td>
<td>26.5%</td>
</tr>
<tr>
<td>Reason Not Enrolled at Intake (N=13)</td>
<td>Failed/ Dropped Out</td>
<td>7</td>
<td>53.8%</td>
</tr>
<tr>
<td></td>
<td>Too Old for My Grade</td>
<td>2</td>
<td>15.4%</td>
</tr>
<tr>
<td></td>
<td>Graduated</td>
<td>2</td>
<td>15.4%</td>
</tr>
<tr>
<td></td>
<td>Other</td>
<td>2</td>
<td>15.4%</td>
</tr>
<tr>
<td>Highest Grade Completed at Intake (N=48)</td>
<td>7th</td>
<td>1</td>
<td>2.1%</td>
</tr>
<tr>
<td></td>
<td>8th</td>
<td>6</td>
<td>12.5%</td>
</tr>
<tr>
<td></td>
<td>9th</td>
<td>11</td>
<td>22.9%</td>
</tr>
<tr>
<td></td>
<td>10th</td>
<td>14</td>
<td>29.2%</td>
</tr>
<tr>
<td></td>
<td>11th</td>
<td>6</td>
<td>12.5%</td>
</tr>
<tr>
<td></td>
<td>12th</td>
<td>10</td>
<td>20.8%</td>
</tr>
</tbody>
</table>
Educational Attainment Results

Data regarding educational attainment were available for forty-six participants. These data are available in Table 4.2. Participants were confirmed to be either currently enrolled in school, have completed high school or its equivalent, or are not enrolled/have not completed high school. Eight participants were enrolled at the time of exit from the program, however they were treated as missing cases as their current status is not known. Of the forty-six participants, thirty-nine were enrolled or had completed high school (84.8%) and seven were not enrolled/had not completed high school (15.2%).

Table 4.2

<table>
<thead>
<tr>
<th>Variable</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enrolled/Completed High School</td>
<td>39</td>
<td>84.8%</td>
</tr>
<tr>
<td>Not Enrolled/Did Not Complete High School</td>
<td>7</td>
<td>15.2%</td>
</tr>
<tr>
<td>Missing Data</td>
<td>18</td>
<td></td>
</tr>
</tbody>
</table>

In Table 4.3, the results of a single-sample $t$ test comparing the mean educational attainment of the sample to a population educational attainment mean of .40 are reported. A significant difference was found ($t(45) = 8.364, p < .05$) The sample mean of .85 ($sd = 0.363$) was significantly greater than the population mean.
Table 4.3

Single-Sample t test of Educational Attainment

<table>
<thead>
<tr>
<th>2006-2008 Educational Attainment</th>
<th>t</th>
<th>df</th>
<th>Sig. (2-tailed)</th>
<th>Mean Difference</th>
<th>95% Confidence Interval of the Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>8.364</td>
<td>45</td>
<td>.000</td>
<td>.448</td>
<td>Lower: .34, Upper: .56</td>
</tr>
</tbody>
</table>

To determine if there were any differences among the participants, analyses examining the intensity of the delivery of program services, the duration of program participation, the participant’s age at the birth of their first child, and the living situation were conducted.

**Intensity of Program Services**

The mean number of visits with a case manager was 6.78 visits, and the median number of visits was 3.0. The sample was split by both the mean and median number of visits with the case manager to determine if there was a difference in educational attainment based on the intensity of the delivery of program services.

A chi-square test of independence was calculated comparing educational attainment with the intensity of contacts with the case manager split by the median (3.0 visits). No significant relationship was found ($\chi^2(1) = .048, p = .826$). Educational attainment did not vary based on intensity of service delivery split by the median.

A chi-square test of independence was calculated comparing educational attainment with the intensity of contacts with the case manager split by the mean (6.78 visits).
visits). No significant relationship was found ($\chi^2(1) = .249, p = .618$). Educational attainment did not vary based on intensity of service delivery split by the mean.

**Duration of Program Participation**

The mean length of participation was 22.8 months and the median length of program participation was eighteen months. The sample was split by both the mean and median months of enrollment to determine if there was a difference in educational attainment based on the duration of program participation.

A chi-square test of independence was calculated comparing educational attainment with the duration of program participation split by the median (18 months). No significant relationship was found ($\chi^2(1) = .287, p = .592$). A second chi-square test of independence was calculated comparing educational attainment with the duration of program participation split by the mean (22.8 months). A significant relationship was not found ($\chi^2(1) = .048, p = .826$). Educational attainment did not vary based on the duration of program participation.

**Age of Participant at Birth of First Child**

The median age of participants at the birth of their first child was calculated to be 16.9 years old. The sample was split by the median age of the mother at the birth of her first child to determine if there was a difference in educational attainment between the two groups.

A chi-square test of independence was calculated comparing educational attainment with the participant age at the birth of her first child split by the median (16.9
years old). No significant relationship was found ($\chi^2(1) = .168, p = .681$). Educational attainment did not vary based on participant age at the birth of her first child.

**Participant Living Situation**

Due to minimal variation in the sample data, the living situation of the participants was categorized into two groups: those that live with their parents and the remaining participants who have other living situations (classified as ‘Other’). A chi-square test of independence was calculated comparing educational attainment with the participant living situation. No significant relationship was found ($\chi^2(1) = 2.51, p = .113$). Educational attainment did not vary based on participant living situation.

Though the results were not significant, the data reveal that of the participants that live with their parents (N=24), twenty-two were achieving educational attainment (91.7%). Of those that did not live with their parents (N=19), fourteen were achieving educational attainment (73.7%). These results were near significant, and a larger sample size would likely result in significant differences across groups.

**Repeat Teen Pregnancy Results**

Data regarding repeat teen pregnancies were available for forty-eight participants. The data are available in Table 4.4. Of the sixteen participants for which data were missing, fourteen had not had a repeat pregnancy at the time of their exit from the program. However, they were treated as missing cases as their current status is not known. Also, data were not available for two participants. Of the forty-eight participants,
forty-five had zero repeat teen pregnancies while enrolled in the Circle of Care (93.8%), while three participants had one repeat pregnancy (6.3%).

Table 4.4
Repeat Teen Pregnancies of Circle of Care Participants

<table>
<thead>
<tr>
<th>Variable</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Zero Repeat Pregnancies</td>
<td>45</td>
<td>93.8%</td>
</tr>
<tr>
<td>One Repeat Pregnancy</td>
<td>3</td>
<td>6.3%</td>
</tr>
<tr>
<td>Missing Data</td>
<td>16</td>
<td></td>
</tr>
</tbody>
</table>

In Table 4.5, the results of a single-sample t test comparing the mean repeat teen pregnancy rate of the sample to a population repeat teen pregnancy mean of .25 are reported. A significant difference was found ($t(47) = -5.310, p < .05$). The sample mean of .06 ($sd = 0.245$) was significantly lower than the population mean of .25. Based on national research findings, 25% of teen mothers have a subsequent teen pregnancy. Only six percent of Circle of Care teen mothers had a subsequent teen pregnancy. Therefore participants of the Circle of Care program are successfully delaying subsequent teen pregnancies.
Table 4.5

Single-Sample $t$ test of Repeat Teen Pregnancies

<table>
<thead>
<tr>
<th>2006-2008 Repeat Teen Pregnancies</th>
<th>$t$</th>
<th>df</th>
<th>Sig. (2-tailed)</th>
<th>Mean Difference</th>
<th>95% Confidence Interval of the Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>-5.310</td>
<td>47</td>
<td>.000</td>
<td>-.188</td>
<td>-.26 to -.12</td>
</tr>
</tbody>
</table>

To determine if there were any differences among the participants, analysis was conducted looking at the intensity of the delivery of program services, the duration of program participation, the participant age at the birth of her first child, and the living situation.

Intensity of Program Services

The mean number of visits with a case manager was 6.78 visits, and the median number of visits was 3.0. The sample was split by both the mean and median number of visits with the case manager to determine if there was a difference in repeat teen pregnancies based on the intensity of the delivery of program services.

A chi-square test of independence was calculated comparing repeat teen pregnancies with the intensity of contacts with the case manager split by the median (3.0 visits). No significant relationship was found ($\chi^2(1) = .683$, $p = .409$). Repeat teen pregnancies did not vary based on intensity of service delivery split by the median.

A second chi-square test of independence was calculated comparing repeat teen pregnancies with the intensity of contacts with the case manager split by the mean (6.78 visits).
visits). No significant relationship was found ($\chi^2(1) = .006, p = .938$). Repeat teen pregnancies did not vary based on intensity of service delivery split by the mean.

**Duration of Program Participation**

The mean length of participation was 22.8 months and the median length of program participation was eighteen months. The sample was split by both the mean and median number of months of enrollment to determine if there was a difference in the number of repeat teen pregnancies based on the duration of program participation.

A chi-square test of independence was calculated comparing repeat teen pregnancies with the duration of program participation split by the median (18 months). No significant relationship was found ($\chi^2(1) = .273, p = .602$). A second chi-square test of independence was calculated comparing repeat teen pregnancies with the duration of program participation split by the mean (22.8 months). No significant relationship was found ($\chi^2(1) = .823, p = .364$). Repeat teen pregnancies did not vary based on the duration of program participation.

**Age of Participant at Birth of First Child**

The median age of participants at the birth of their first child was calculated to be 16.9 years old. The sample was split by the median participant age at the birth of her first child to determine if there was a difference in repeat teen pregnancies between the two groups.

A chi-square test of independence was calculated comparing repeat teen pregnancies with the participant age at the birth of her first child split by the median (16.9
years old). No significant relationship was found ($\chi^2(1) = .273, p = .602$). Repeat teen pregnancies did not vary based on participant age at the birth of her first child.

**Participant Living Situation**

A chi-square test of independence was calculated comparing repeat teen pregnancies with the participant living situation. No significant relationship was found ($\chi^2(1) = 1.271, p = .260$). Repeat teen pregnancies did not vary based on participant living situation. Though the results were not significant, the data reveal that two out of the three participants that live with their parents had repeat pregnancies. Those that did not live with their parents had zero repeat pregnancies.

**Child Abuse and Neglect Results**

Data regarding substantiated cases of child abuse and neglect (CAN) were available for all sixty-four participants. The data are available in Table 4.6. Of the sixty-four participants, zero participants had a substantiated incident of child abuse and fifty-nine participants had zero substantiated cases of child neglect (92.2%). Five participants had one or more incident of child neglect (7.8%).

<table>
<thead>
<tr>
<th>Variable</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Zero Incidents of CAN</td>
<td>59</td>
<td>92.2%</td>
</tr>
<tr>
<td>One or More Incident of CAN</td>
<td>5</td>
<td>7.8%</td>
</tr>
<tr>
<td>Missing Data</td>
<td>0</td>
<td></td>
</tr>
</tbody>
</table>
National child abuse and neglect rates for pregnant and parenting teens are not readily available; therefore a single-sample $t$ test could not be conducted. Though the results are not comparable to national rates, the zero occurrence of child abuse and minimal occurrence of child neglect is a positive finding among program participants.

To determine if there were any differences among the participants, analysis was conducted looking at the intensity of the delivery of program services, the duration of program participation, participant’s age at the birth of her first child, and living situation.

**Intensity of Program Services**

The mean number of visits with a case manager was 6.78 visits, and the median number of visits was 3.0. A chi-square test of independence was calculated comparing child abuse and neglect with the intensity of contacts with the case manager split by the median (3.0 visits). No significant relationship was found ($\chi^2(1) = .062, p = .804$). A chi-square test of independence was calculated comparing child abuse and neglect with the intensity of contacts with the case manager split by the mean (6.78 visits). No significant relationship was found ($\chi^2(1) = .378, p = .538$). Child abuse and neglect did not vary based on intensity of service delivery.

**Duration of Program Participation**

The mean length of participation was 22.8 months and the median length of program participation was eighteen months. The sample was split by both the mean and median number of months of enrollment to determine if there was a difference in child abuse and neglect based on the duration of program participation.
A chi-square test of independence was calculated comparing child abuse and neglect with the duration of program participation split by the mean (22.8 months). A significant relationship was not found ($\chi^2(1) = 0.9999, p = .318$). A second chi-square test of independence was calculated comparing child abuse and neglect with the duration of program participation split by the median (18 months). No significant relationship was found ($\chi^2(1) = 2.164, p = .141$). Child abuse and neglect did not vary based on the duration of program participation. Though a significant relationship was not found, four out of five of the participants that had at least one substantiated case of child abuse and neglect participated in the program eighteen months or longer.

**Age of Participant at Birth of First Child**

The median age of the participants at the birth of their first child was calculated to be 16.9 years old. The sample was split by the median participant age at the birth of her first child to determine if there was a difference in child abuse and neglect based on age.

A chi-square test of independence was calculated comparing child abuse and neglect with the participant age at the birth of her first child split by the median (16.9 years old). No significant relationship was found ($\chi^2(1) = 1.402, p = .236$). Child abuse and neglect did not vary based on participant age at the birth of her first child. Though a significant relationship was not found, four out of five of the participants that had at least one case of child abuse and neglect were 16.9 years or younger at the birth of their first child. The increased incidence may be attributed to having their first child at a younger age.
**Participant Living Situation**

A chi-square test of independence was calculated comparing child abuse and neglect with the participant living situation. No significant relationship was found ($\chi^2(1) = .055, p = .814$). Child abuse and neglect did not vary based on participant living situation.

The results indicate that the intervention and prevention services being provided by the Circle of Care program are positively impacting educational attainment, preventing repeat teen pregnancies, and reducing substantiated cases of child abuse and neglect.
CHAPTER V
DISCUSSION

Using the compiled data set received for participants in the Circle of Care program, three outcome variables were analyzed to determine if the intervention program impacted teen mothers. The three outcome variables analyzed include educational attainment, the prevention of subsequent teen pregnancies, and the prevention of substantiated cases of child abuse and neglect. Each of these outcomes were examined using six primary research questions. The research questions include:

1. Does program participation impact participant outcomes?
2. Do Circle of Care participants have increased outcomes when compared to the general population of teen mothers?
3. Does intensity of the delivery of Circle of Care program services impact participant outcomes?
4. Does the duration of the program participation in Circle of Care impact participant outcomes?
5. Does participant age at the birth of her first child impact educational outcomes?
6. Do participant living situations impact participant outcomes?

Overall, eighteen research questions were addressed and answered using the Circle of Care participant data.
Interpretation of Findings

Educational attainment data were available for forty-six of the sixty-four participants (71.9%). Of these participants, thirty-nine were enrolled or had completed high school (84.8%) and seven were not enrolled/had not completed high school (15.2%). Educational attainment results were higher for participants of Circle of Care than the general population of teen mothers. The high school completion rate far exceeded that of the general population. The results of a single-sample $t$ test comparing the mean educational attainment of the sample (.85) to a population educational attainment mean (.40) revealed statistically significant differences. The Circle of Care participant’s educational attainment sample mean of .85 was significantly greater than the population mean.

To determine if there were differences among the participants, specific programmatic indicators were analyzed. These included examining the intensity and duration of program participation, the participant age at the birth of her first child, and the participant living situation. Examining intensity and duration of programmatic services did not reveal any differences among the participants. The median for both variables were calculated to determine a point to split the sample group for analyses. The median was chosen as it divides the group into two equal sized comparison groups, and it is not skewed as a mean may be. The mean was also examined as it differed significantly from the median for both intensity and duration; though it was skewed to the left for both intensity and duration. Chi square analysis revealed there were no differences in either intensity or duration of programmatic services for educational attainment.
The median age of participants at the birth of their first child was calculated to be 16.9 years old. The sample was split by the median participant age at the birth of her first child to determine if there was a difference in educational attainment between the two groups. A chi-square test of independence did not reveal a significant relationship between educational attainment and participant age at the birth of her first child.

The living situation of the participants was categorized into two groups: those that live with their parents and the remaining participants who have other living situations (classified as ‘Other’). A chi-square test of independence did not reveal a significant relationship between educational attainment and participant living situation. However, a larger percentage of participants that live with their parents were achieving educational attainment when compared to those that did not live with their parents. This may be due to a stronger support system being in place for the teens by living at home with their parents. The teen mother’s parents could be accommodating the teen mother to enable them to continue their education by providing child care and a place to live, which results in higher educational attainment among teen mothers that live with their parents. These results were near significance, and a larger sample size would likely result in significant differences across groups.

Data regarding repeat teen pregnancies were available for forty-eight participants (75%). Repeat teen pregnancy occurred three times among these participants over the course of three years, which equates to approximately five percent of the population. Without intervention, it would be expected that 25% of teen mothers would have a subsequent teen pregnancy, which would equate to sixteen participants from this sample.
It could be deduced that Circle of Care prevented thirteen subsequent teen pregnancies among participants. Results of a single-sample $t$ test comparing the 5% repeat teen pregnancy rate of the sample to a population repeat teen pregnancy percentage of 25% revealed that the Circle of Care rate was significantly lower than the population rate. Participants of the Circle of Care program are successfully delaying subsequent teen pregnancies.

Chi-square analysis revealed there were no differences in either intensity or duration of programmatic services for educational attainment. The median age of participants at the birth of their first child was calculated to be 16.9 years old. The sample was split by the median participant age at the birth of her first child to determine if there was a difference in repeat teen pregnancies between the two groups. A chi-square test of independence did not reveal a significant relationship. Repeat teen pregnancies did not vary based on participant age at the birth of her first child.

Participant living situation was examined to determine if it had an impact on the occurrence of repeat pregnancies. A chi-square test of independence revealed that there was not a significant relationship among participant living situations. Repeat teen pregnancies did not vary based on participant living situation. Though the results were not significant, the data revealed that two out of the three participants that live with their parents had repeat pregnancies. Those that did not live with their parents had zero repeat pregnancies. These findings could reveal that though the teen mother’s parents are enabling her to continue her education, they may not be enforcing necessary behavioral changes to reduce the repeat pregnancy rate. A policy change could consist of including
the teen mother’s parents in receiving components of the Circle of Care program services to make them aware of their role in promoting positive life outcomes for their teenage daughter as well as her child or children.

Data regarding substantiated cases of child abuse and neglect were available for sixty-four participants (100%). There were zero incidents of substantiated child abuse and five incidents of substantiated child neglect among program participants over the course of five years (2004-2008). National child abuse and neglect rates for pregnant and parenting teens are not readily available; therefore a single-sample $t$ test could not be conducted. Though national rates are not available for comparison, the zero occurrence of child abuse and minimal occurrence of child neglect is a positive finding among Circle of Care participants. This indicates that the Circle of Care program service providers are having a positive impact on participants and their families.

Chi-square analysis revealed there were no differences in either intensity or duration of programmatic services for reducing the incidence of child abuse and neglect. Though a significant relationship was not found, four out of five of the participants that had at least one case of child abuse and neglect participated in the program eighteen months or longer. Additionally, child abuse and neglect did not vary based on participant living situation.

Child abuse and neglect did not vary based on participant age at the birth of her first child. Though a significant relationship was not found, four out of five of the participants that had at least one case of child abuse and neglect were 16.9 years or
younger at the birth of their first child. The increased incidence may be attributed to having a child at a younger age.

**Study Limitations**

The data used in this research were provided as a complete data set from the Center for Community Studies, Inc. Limitations that were revealed include the following: there is one program case manager, the majority of the data supplied were from the case manager, the data set is incomplete, there is a small sample size, the data are from three years, and there is minimal variation in participant outcomes.

**Case Manager**

Program funding only allows for one case manager for the Circle of Care program. This case manager provides services to the participants as well as collects the majority of the data on all participants. Having only one case manager limits the maximum number of participants that can receive services at any given time.

The case manager has funding to carry a case load of thirty participants. Due to participants entering and exiting the program throughout the year, on average thirty to forty-five participants received services each year. Over the three year period of this study, sixty-four participants received services from the case manager. The size of the sample was small, which limited the analysis.

Data that were provided from other service providers were limited, therefore the majority of the data included in this data set were from the case manager. Since the case manager is the primary source of data regarding participant outcomes, the reliability of
the actual data may be compromised. Ideally, the data should be collected from multiple sources to increase its reliability.

**Data Set**

The data set used in this research was not complete. Information was missing regarding participant demographics, outcomes, and participant follow-up information. In addition, the program has been providing services for eleven years; however the majority of the data were only available for three years. This limits the types of analyses that can be performed, limiting overall programmatic findings.

Outcome data were missing for approximately one-third of the participants with regards to education and repeat pregnancies. The majority of the participants that were missing data exited the program in 2006 and early in 2007. If a participant was twenty years old or older at the time of exit, their repeat pregnancy status at the time of exit was used in this report. If the participant was nineteen or younger at exit and their current status was unknown, they were treated as missing. The participants had not had a subsequent pregnancy at exit, however it could not be assumed that they did not have a subsequent pregnancy without confirmation of their status.

Education outcomes were treated in a similar manner. Participants that had completed their education at the time of exit were included in this report. Once the participant exited the program, their enrollment status was not able to be confirmed; therefore they were treated as missing. Child abuse and neglect outcomes were available for all participants. These data were supplied directly from the Department of Family and Children Services for all participants.
Data regarding referral follow-up were not included in this data set. The case manager referred participants to the necessary community organizations that provide the needed services to the participant. Ideally, the service providers would provide information regarding if the participants had come to their organization for services. There are approximately ten partner organizations that provide services to the participants. Follow-up information was only provided from one organization – The Spot. Additional information on referrals and subsequent services accessed and received by participants could enable researchers to find the specific combination of services that contribute to the apparent program success. This knowledge could allow for program expansion within Troup County and to replicate its success in other communities.

Without having a complete data set including outcomes and follow-up information, complete findings regarding the success of the Circle of Care program cannot be fully understood. The available data show promise that the program is successful in preventing subsequent teen pregnancies, enabling the participating teen mothers to increase their educational attainment, and reducing the number of substantiated cases of child abuse and neglect.

**Minimal Variation in Outcomes**

Analyses of the data were limited to descriptive statistics, chi-square, and single-sample $t$ tests. There was minimal variation among participants regarding outcomes, due in no small part to the apparent success of the program. Over three years, there were three subsequent pregnancies, five substantiated cases of child neglect, zero substantiated cases of child abuse and seven participants dropped out of school. All of these findings are
positive results for the program; however they limit the ability to perform additional statistical analyses. Additionally, minimal variation in such a small sample limits statistically significant findings.

Overall, the findings regarding participant outcomes revealed that the Circle of Care program has had noticeable success. The limitations in the data as a result of having one case manager delivering services and collecting data, an incomplete data set, and minimal variation within the outcomes do not allow for the most accurate findings for the program. By having a more complete data set, a better understanding of the programmatic effect of Circle of Care could be determined. These findings could lend to increased financial support which could result in the addition of a second case manager or support staff for the case manager for data collection purposes.

**Recommendations**

Based on the available participant outcome data, Circle of Care appears to be successfully achieving their programmatic goals of reducing subsequent teen pregnancies, increasing educational attainment and decreasing child abuse and neglect among participants. However, due to missing outcome data for educational attainment and subsequent teen pregnancies, these results cannot be fully understood. Almost twenty-five percent of the participants exited the program and there were no follow-up contacts recorded. The majority of the participants that exited the program had not had a subsequent pregnancy at the time of exit and were achieving educational attainment at the time of exit, but due to a lapse in contact, their current status is unknown. Circle of Care has had tremendous success at impacting these outcomes while teens are enrolled in the
program; however the long-term programmatic impact is unknown once the participant has exited the program. Therefore, a complete evaluation of the program was not able to be conducted.

Child abuse and neglect (CAN) data were available for all participants, and the rates were lower than expected for this high-risk population. The complete data-set regarding CAN allows us to conclude that Circle of Care impacted the rate of child abuse and neglect, however the mechanism for achieving this goal cannot fully understood. A relationship was not found between the intensity and duration of programmatic services and the incidence of CAN. This could be due to such a small sample of participants and the lack variability within the group.

In an attempt to collect the missing data to have a more accurate understanding the program, the policy makers for Circle of Care should re-evaluate the current procedures in place regarding program implementation. Procedures need to be developed to provide accurate long-term follow-up for all participants in the program. The case manager carries a substantial case load and is expected to manage the program, provide services to the participants and to track all of her interactions with the participants. She is the sole program staff member and she is basically on-call for the program participants 24 hours a day, seven days a week. Expansion of programmatic personnel to include an additional case manager or an administrative assistant for the current case manager could allow for better service deliver and service tracking. An administrative assistant could handle the day-to-day office tasks such as scheduling, data logging, and participant follow-up that may not be the primary focus of the case manager who deals with teens in
crisis on a daily basis. This would enable the case manager to focus more on service
delivery and potentially result in a more complete data set regarding participant
involvement and outcomes.

An additional suggestion for the program would be to administer some sort of risk
assessment survey at intake into the program. The survey would ask questions about the
participant’s attitudes and beliefs regarding family planning, contraceptive use, drug and
alcohol use, and their current parenting knowledge and practices. This survey could be
administered to all participants upon intake into the program giving the case manager
insight into the participant’s knowledge about these topics. The specific case plan could
be developed based on the intake process and the findings from this survey. If the survey
were to be developed as a pre-post design, it could be administered at some determined
point to measure if there was a change in beliefs and attitudes after receiving the Circle of
Care prevention and intervention services.

Further Research

Further research regarding Circle of Care could include a more in-depth look at the
program. This could be accomplished by looking at the program outcomes since
inception, which would require a more complete data set. In addition, qualitative research
could be conducted with the participants in the form of focus groups, surveys and one-on-
one interviews. This would allow participants to provide their input regarding what
components of the program worked best for them, which components they did not need
or utilize, and which ones are not working. These findings could lead to programmatic
policy changes to streamline the delivery of services, enabling Circle of Care to have a
greater impact on the participants and their families.
CHAPTER VI

SUMMARY AND CONCLUSIONS

The purpose of this analysis of Circle of Care is to determine if the program is increasing educational attainment, reducing subsequent teen pregnancies, and reducing the incidence of child abuse and neglect among teen mothers in Troup County, Georgia. The goal is to determine if the services being offered are providing opportunity for the participants to improve their own lives as well as the lives of their children. Overall participants had better outcomes than the general population of teen mothers. The rate of subsequent teen pregnancies was significantly lower than the rates at the national level. Educational attainment among program participants was significantly higher than the national rates. Finally, the incidence of child abuse and neglect was minimal. National rates of child abuse and neglect among teen mothers have not been reported. It would be expected that the rates would be higher among this high-risk population. The low Circle of Care rates are a positive finding that the program is potentially providing the intervention and prevention services needed to limit the occurrence of child abuse and neglect. A more in depth analysis of the program since inception and a study of the link between programmatic referrals and services received from partnering organizations would lend to a better understanding of the program. Further data collection through
interviews and surveys of current and past participants would allow for a deeper understanding of the impact that Circle of Care has had on its participants.
REFERENCES


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APPENDIX A

CIRCLE OF CARE INTAKE FORM
Intake Form

Name: ___________________________  Today's Date: ________________
Address: ______________________________________________________

Home Phone: __________________________________________________
Sex:  □ Female  □ Male  Age: .......  □ 10  □ 11  □ 12  □ 13  □ 14  □ 15  □ 16  □ 17
Date of Birth: ___________  SS Number: ______________  Legal Status: __________
Ethnicity of Teen:
□ African-American  □ Caucasian  □ Hispanic  □ Asian  □ Bi-Racial  □ Other
How old is the father of your baby?
□ 10 - 14  □ 15 - 17  □ 18 - 20  □ 21 - 25  □ 26 - 30  □ over 30

Parent/Guardian of Teen: ________________________________
Parent/Guardian of Teen Phone Number: _______________________
Emergency Contact: _________________________________________
Emergency Contact Number: _________________________________
Has the baby been born to date? ________________________________  □ Yes  □ No
If NO, Skip to Housing and Family Members.

Infant's Name: _______________________________________________
Date of Infant’s Birth: ___________  Sex of Infant: ________________
Infants Weight At Birth: ...  □ less than 5 lbs.  □ 5 - 6 lbs.  □ 6 - 7 lbs.  □ 7 - 8 lbs.  □ more than 8 lbs.
Ethnicity of Infant: ...  □ African-American  □ Caucasian  □ Hispanic  □ Asian  □ Bi-Racial  □ Other
Was this a full-term pregnancy? □ Yes  □ Uncertain  □ No
If No or Uncertain, in what month of pregnancy was the baby born? ________________  □ 6 months  □ 7 months  □ 8 months  □ 9 months

Housing and Family Members
Who do you live with?
□ Parent  □ Guardian  □ Relative  □ By myself
□ Other: ___________________________________________________

Do you:  □ Rent?  □ Own?  □ Live in Public Housing?
□ Other: ___________________________________________________

Do you need any assistance regarding housing needs? ________________  □ Yes  □ No
If Yes, Please Specify: ________________________________________
Educational History

Are you currently enrolled in school? ........................................... □ Yes □ No
If YES, which school?
□ LaGrange High □ Callaway High □ Long Cane Middle □ West Side Magnet
□ Troup High □ Gardner Newman □ Callaway Middle
□ Other:

Highest Grade Completed . □ 4th □ 9th □ 6th □ 7th □ 8th □ 9th □ 10th □ 11th □ 12th
Have you ever been suspended? ........................................... □ Yes □ No
If YES, please explain:

________________________________________________________________________

If not currently enrolled in school, list reasons: Check all that apply
□ Dropped Out □ Failed □ No Daycare for my Child
□ Suspended □ Too Old for my grade □ Zero Tolerance Offense
□ Other:

What school problems can we work on together?

________________________________________________________________________

Employment

Are you employed? ........................................... □ Yes □ No
Name of Employer/Company: __________________________

Number of Hours Worked Each Week
□ Less than 10 hours □ 20 - 30 hours
□ 10 - 20 hours □ More than 30 hours

Work Phone: __________________________

List any work related problems

________________________________________________________________________
Total Family Income (includes parent(s) of teen, teen’s income, and any public assistance):

- $0 - $5,000
- $5,001 - $10,000
- $10,001 - $15,000
- $15,001 - $25,000
- $25,000+

Social Services

Check any of the following services that teen or family members receive:

- TANF
- JTPA
- Job Training
- Child Support
- CAFI
- SSI
- Health
- Literacy Classes
- Enforcement
- WorkFirst
- WIC
- Department
- GED classes
- Juvenile Court
- Other:

Have you participated in any of the following programs?

- Communities In Schools
- Child and Family
- Advocacy Parenting
- Classes
- Boy Scouts/Girl Scouts
- Alpha Phi Alpha Classes
- Church Activities
- Civic Organizations
- School based activities
- Other:

Health of Child

Name of baby’s doctor ..............................................

Date for baby’s 6-week check-up OR last physical exam date ........

Yes  Uncertain  No

Has your baby had a vision and hearing screening? ...................

Has your baby had a Health Check? .................................

Is your baby covered by Medicaid/private insurance? ................

Are the baby’s immunizations up to date? ...........................

Do you have concerns about your baby’s health or development? ....

If YES, please specify

Did your child leave the hospital with any problems that require after care? .............................

Yes  Uncertain  No

If YES, please specify
Teen's Health

Did you have any complications during pregnancy? ...........................................  ❑  ❑  ❑

Had you been using alcohol and/or drugs at the time you became pregnant? ....  ❑  ❑  ❑

Did you drink alcohol during your pregnancy? .............................................  ❑  ❑  ❑

Did you use any type of drugs, not prescribed for you by a doctor, during your pregnancy? .................................................................  ❑  ❑  ❑

Did you receive monthly pre-natal care during pregnancy? ............................  ❑  ❑  ❑

Are you covered by Medicaid/private insurance? .........................................  ❑  ❑  ❑

Have you been to a dentist within the last six months? ...............................  ❑  ❑  ❑

Have you had your post-partum check-up? ....................................................  ❑  ❑  ❑

If YES, give date ____________________________________________

How many pregnancies have you had in your life? ......................................  ❑  ❑  ❑  ❑  ❑

How many miscarriages have you had? .......................................................  ❑  ❑  ❑  ❑  ❑

How many abortions have you had? .............................................................  ❑  ❑  ❑  ❑  ❑

Are you nursing your baby? ................................................................. ❑ Yes ❑ No

What is your current method of birth control?
❑ None ❑ Depo-Provera Shot ❑ Norplant
❑ Birth control pills ❑ Condoms ❑ Currently pregnant
❑ Other: __________________________________________________________________

Parenting Issues

How many children have you had before this baby? ........  ❑ 0 ❑ 1 ❑ 2 ❑ 3 ❑ 4 or more

Are you in contact with the baby's father? .................................................  ❑ Yes ❑ Uncertain ❑ No

Are you still in a relationship with the baby's father? ...............................  ❑  ❑  ❑

Do you receive child support? .................................................................  ❑  ❑  ❑

Do you want help to get child support? .....................................................  ❑  ❑  ❑

Do you have daycare for your child if you want to attend school or work? ....  ❑  ❑  ❑

Have you ever attended parenting classes? .................................................  ❑  ❑  ❑

If YES, where and when?

______________________________________________________________

Do all of your children live with you? .......................................................  ❑ Yes ❑ No

If NO, please explain why.

______________________________________________________________

______________________________________________________________

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Names of Children and Ages if applicable

Are you having difficulty meeting your baby's immediate needs? (Diapers, formula, clothes, crib) .................................................... ☐ Yes ☐ Uncertain ☐ No
If YES or UNCERTAIN, please specify unmet needs

Are there other problems or needs that you have that we have not discussed?

Referrals Needed/Made

Check all that apply
☐ Family Planning Services
☐ Parenting Classes- Child and Family Advocacy
☐ GED Program
☐ Pregnancy Care Center- Parenting Classes/ Baby Boutique/ Other
☐ Male Responsibility Program
☐ Family Participation in Parenting Classes
☐ School Enrollment
☐ Life Skills Exploratory
☐ Other:

☐ Community in Schools Classes
☐ Community in Schools Mentoring Program
☐ Health Department
☐ Babies Can't Wait
☐ Disabilities Community
☐ Rehabilitation Community
☐ Head Start
☐ Family Preservation/Family Support
☐ Child Abuse/Neglect Reporting
☐ Department of Family and Children Services
☐ Substance Abuse Treatment
☐ Health Care
☐ Dental Care
☐ Family Counseling
☐ Legal Services/Child Support Enforcement
☐ WIC
☐ Children's First

Date referrals made and agency/organization

Client/Family Strengths

Assessment Based Needs

1. _____________________________ 4. _____________________________
2. _____________________________ 5. _____________________________
3. _____________________________ 6. _____________________________
APPENDIX B

CIRCLE OF CARE CASE NOTES FORM
Case Notes

Week of: ___________________  Client’s Name: ________________________________

Description of Participant:
- Neat and Well Groomed
- Messy and Disheveled
- Telephone Call
- Other: ____________________________
- N/A

Purpose of Contact: __________________________________________________________

Duration of Interaction:
- 5 Minutes
- 10 Minutes
- 15 Minutes
- 30 Minutes
- 45 Minutes
- 1 Hour
- 1 Hour 15 Minutes
- 1 Hour 30 Minutes
- 1 Hour 45 Minutes
- 2 Hours
- Other: ____________________________

Services Provided:
- Case Management (30)
- Center Based Parent Education (2)
- Child Family Assessment (2)
- Customer Transportation (15)
- Crisis Intervention Management (3)
- Follow Up Services (3)
- Home Based Parent Education (45)
- Information & Referral Services (40)
- Mentoring Services (4)
- Parent Child Group Activities (1)
- Other: ____________________________

Referred to:
- DFCS Childcare
- District 4 RN
- District 4 Health
- The Spot
- City of LaGrange (Utilities)
- School System Social Worker
- LaGrange Personal Aid
- Other: ____________________________
- N/A

Observations: _________________________________________________________________

Action/Follow Up: ____________________________________________________________
APPENDIX C

AGREEMENT TO CONFIDENTIALITY
Agreement to Confidentiality

I, Program Participant

understand that confidentiality of identifiable information about myself, my family and/or my child(ren) shall be maintained according to all relevant state and federal statutes, rules, and regulations. The oral or written information presented or shared by myself and/or my child(ren) may be used and shared by the program and/or its designee (evaluator) for the purposes of research, program evaluation and reporting in compiled data formats only. Except for the aforementioned designee (evaluator), any oral or written information will not be released to any other agency or person without my expressed written consent or at my legal representative. A summary report of the data findings is available upon request.

The data that is collected about you will be kept private to the extent allowed by law. Your data will be kept under a code number and all individual firm and facility information will be kept in a secured, limited access location. Results will only be presented in an aggregated form. Your identity will not be revealed in any publication or presentation of the results of this study. There are no foreseeable risks to you by participating in this study. Your participation in the survey is voluntary, and you will not have to pay to participate nor will you be paid. If you have any questions about your rights in participating in this research study, you may contact Ms. Catherine Kotilnik at the Center For Community Studies at (706) 298-4512.

__________________________________________
Signature of Program Participant

__________________________________________
Date

__________________________________________
Signature of Program Staff

__________________________________________
Date

Upon exit of the program, I agree to be contacted at the information given below for necessary follow-up by Center for Community Studies, Inc.

Please Print.

Address: ________________________________________________________________

City, State: ______________________________________________________________

Phone: __________ Alt. Phone: ______________________________________________

__________________________________________
Signature of Program Participant

__________________________________________
Date
APPENDIX D

CENTER FOR COMMUNITY STUDIES PERMISSION LETTER
February 28, 2008

Mississippi State University
Institutional Review Board for the Protection of Human Subjects in Research
8A Morgan Street
Campus Mailstop 9563
PO Box 6223
Mississippi State, MS 39762

To Whom It May Concern:

The Center for Community Studies, Inc. will allow Andrea M. Brace access to an existing data set concerning the Circle of Care Program. The data set contains anonymous data which lacks any personal identifiers for the program participants. Access will be granted for the purpose of data analysis to be used in the preparation of Ms. Brace's Master's thesis. Please feel free to contact me if there are any questions concerning the use of this data.

Sincerely,

[Signature]

Catherine D. Kostilnik, M.H.S., CHES, CFLE
President
Center for Community Studies, Inc.
304 Fort Drive
LaGrange, GA 30241
706-298-4512
706-298-4517 FAX
ckostilnik@ccstudies.org
APPENDIX E

TWIN CEDARS PERMISSION LETTER
March 17, 2008

Mississippi State University
Institutional Review Board for the Protection of Human Subjects in Research
8A Morgan Street
Campus Mailstop 9563
PO Box 6223
Mississippi State, MS 38762

To Whom It May Concern:

Twin Cedars Youth Services, Inc and the Circle of Care Program will allow Andrea M. Brace to distribute a survey to Circle of Care participants during Circle of Care Program meetings. The survey requests anonymous data which lacks any personal identifiers for the program participants. Andrea Brace will administer the surveys and analyze the data to be used in the preparation of Ms. Brace’s Master’s thesis. Please feel free to contact us if there are any questions concerning the use of this data.

Sincerely,

[Signature]
Norma Tucker, Program Coordinator
Circle of Care
308 N. Lewis Street
LaGrange, GA 30241
706-298-0050 ext 107
ntucker@twincedars.org

[Signature]
Sheri Cody, Director of Program Services
Twin Cedars Youth Services, Inc.
308 N. Lewis Street
LaGrange, GA 30241
706-298-0050 ext 103
scody@twincedars.org
APPENDIX F

MISSISSIPPI STATE UNIVERSITY IRB APPROVAL LETTER
March 11, 2008

Andrea Brace
339 Baileys Way
LaGrange, GA 30241

RE: IRB Study #08-080: Promoting positive life outcomes amongst at-risk populations: A study of the Circle of Care Strategy impacting teen mothers and their children - Existing Data

Dear Ms. Brace:

The above referenced project was reviewed and approved via administrative review on 3/11/2008 in accordance with 45 CFR 46.101(b)(4). Continuing review is not necessary for this project. However, any modification to the project must be reviewed and approved by the IRB prior to implementation. Any failure to adhere to the approved protocol could result in suspension or termination of your project. The IRB reserves the right, at anytime during the project period, to observe you and the additional researchers on this project.

Please refer to your IRB number (#08-080) when contacting our office regarding this application.

Thank you for your cooperation and good luck to you in conducting this research project. If you have questions or concerns, please contact irb@research.msstate.edu or 325-3294.

Sincerely,

Katherine Crowley
Assistant IRB Compliance Administrator

cc: Dr. Michael Hall