THE IMPACT OF AN INFANT SIMULATION INTERVENTION PROGRAM ON THE PERCEPTIONS OF PREGNANCY AND INFANT CARE IN ADOLESCENTS

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ABSTRACT

RESEARCH PAPER: The Impact of an Infant Simulation Intervention Program on the Perceptions of Pregnancy and Infant Care in Adolescents

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Adolescents often have difficulty in grasping the weight of responsibility in caring for an infant. Baby Think It Over is an infant simulator that gives adolescents an opportunity to experience the daily care of an infant, including the impact that caring for an infant has on his or her day-to-day life. The purpose of this study is to evaluate the impact of the Baby Think It Over (BTIO) intervention on adolescents' academic and social lives, emotions, family members, and cultural values, as well as adolescents' plans to delay pregnancy. This is a replication of deAnda's (2006) study. The framework is the Baby Think It Over Intervention program. The population will consist of 7th and 8th grade students from one of the four main middle schools in Durham County, NC (N=275). The anticipated sample will consist of 100 students. BTIO-1 will measure the effect that caring for an infant has on: academic life, social life, family members, emotional risks, and cultural values. BTIO-2 will measure the effect of the intervention on the students’ plans to postpone pregnancy. The results of this study will be significant in evaluating the perceptions of pregnancy in adolescents regarding their family, social, and academic lives, and further support health care providers and school officials in preventing adolescent pregnancy.
Chapter I

Introduction

According to a 2009 report by the United Nations Population Fund (UNFPA), the rate of births in the United States (US) for women 15-19 years of age still stagers above most industrialized nations, including the Netherlands, Sweden, France, Italy, Germany, Switzerland, and Australia. Despite a 41% decrease in teen pregnancies and 35% decrease in teen births in the US between 1990 and 2005, recent studies have shown a reverse in this trend since 2006 (Wind, 2010).

According to the Centers for Disease Control's [CDC] 2009 Youth Risk Behavior Survey (2010b), nationwide, 46% of high school students have had sexual intercourse at one time, and 34.2% are currently sexually active. Among these sexually active teens, only 61.1% actually reported using a condom during their last sexual intercourse, and 22.9% reported using birth control pills or Depo-Provera to prevent pregnancy before their last sexual intercourse (CDC, 2010b). Only 8.9% among the 34.2% of sexually active teens reported using a combination of both condoms and Depo-Provera or birth control pills (CDC, 2010b). Despite a substantial number of teenagers reporting use of contraceptives, a significant number continue to put themselves at risk for pregnancy and sexually transmitted infections. Of the 18.9 million new cases of sexually transmitted infections that
occur each year, 48% (9.1 million) are among 15-24 year olds, and a teen that is sexually active, but does not use a contraceptive(s), has a 90% risk of becoming pregnant within the next year (Guttmacher Institute, 2010a). Most teen pregnancies, approximately 82%, are unplanned and account for approximately one-fifth of all unintended pregnancies annually (Guttmacher Institute, 2010a). Abortion rates among adolescents have shown significant numbers as a result of unintended adolescent pregnancies. According to the Guttmacher Institute (2010a), 27% of pregnancies that occurred among 15-19 year olds resulted in abortions in 2006.

The disparities and health risks for the mother, father, and child in teenage pregnancies are also of great concern, even in lieu of improvements in health care and resources for teenage mothers. Teenage mothers are now more likely to obtain their high school diploma or GED than in the past, but are still less likely than their childless counterparts to attend college (Guttmacher Institute, 2010a). Teen mothers also earn less money, on average, at almost every age, and receive significantly higher levels of public assistance than women who delay child bearing until a later age (Hoffman & Maynard, 2008). Teen fathers are also more likely to complete fewer years of school, earn less annual income by the age of 27, and participate less in the workforce than men who delayed child bearing until age 21 (American College of Obstetricians and Gynecologists [ACOG], 2009).

Children of adolescent mothers are subject to greater health risks and mortality than children of older women. Adolescent mothers are more likely to experience
complications with pregnancy, and give birth to low-birth-weight babies, as compared to older mothers, due to a lower incidence of receiving appropriate prenatal care (ACOG, 2009). Compared to women 20-24 years old, teenage mothers are more likely to gain less weight during pregnancy and are more likely to smoke during pregnancy (ACOG). Rates of pre-term delivery, low Apgar scores and neonatal mortalities are also found to be higher amongst teenage pregnancies, especially those in which the mother is less than 17 years of age. The aforementioned risks were found to decrease with increasing maternal age (Chen, et al., 2007). Children of teen mothers are more likely to suffer from health and cognitive disadvantages, as well as more likely to be neglected or abused (ACOG). In a study conducted by Terry-Humen, Manlove and Moore in 2005 to assess children's preparedness for kindergarten, children born to mothers younger than 17 years performed significantly lower on math, reading, general knowledge tests, and teacher assessments than those children born to mothers aged 20 years or older. Daughters of adolescent mothers are also more likely to become adolescent mothers themselves, while sons of adolescent mothers are more likely to become incarcerated (ACOG, p. 9).

Adolescent pregnancy has continued to contribute to the growing costs of health care, and the numbers are staggering. In 2004 alone, teen childbearing cost taxpayers, including federal, state and local, approximately $9.1 billion, which averaged to $1,430 for every child born to an adolescent mother. These costs for children of teen mothers are associated with negative consequences, including
increased child welfare costs, state prison costs, and public health care costs, as well as lost revenue as a result of lower taxes paid by the children of adolescent mothers over their lifetimes (Hoffman, 2006). The reduction in teenage pregnancies and births between 1991 and 2004 did show a significant savings for U.S. taxpayers, approximately 161 billion dollars in 2004 (Hoffman, 2006). Further reductions in teenage pregnancies may help to continue a reduction in public health care and public resource spending, and reduce adolescent men and women’s reliance on public assistance.

Adolescent pregnancy has become a well-documented health concern that continues to affect a number of female and male adolescents in the United States, far beyond that of other modern nations. Despite a decrease in teen pregnancy rates, recent increases justify a reexamination of effective and appropriate sexual health and pregnancy prevention programs. Various educational programs are incorporated throughout healthcare offices and schools, though the debates are still waged over abstinence-only versus comprehensive sex education.

Background and Significance

Sexual health education in the United States has divided health care professionals, parents, educators and policy makers alike. The debate between abstinence-only and comprehensive sexual health education is ongoing, and has sparked numerous studies in the pursuit of identifying evidence to support one curriculum’s ideology over the other.
Abstinence-only education program supporters remain steadfast in the belief that abstaining from sexual intercourse until marriage is the only effective means of preventing early pregnancy and the spread of sexually transmitted infections in adolescents. It is explained to adolescents that sexual intercourse outside of marriage can result in harmful consequences. Since abstinence is seen as the only appropriate and safe choice for adolescents to make, abstinence-only sex education programs do not include instruction regarding contraceptives (Center for AIDS Prevention Studies at the University of California San Francisco [CAPS], 1997).

The United States has a long history of supporting abstinence-only education. Beginning in 1982, federal support was given to programs that promoted abstinence until marriage through a small pool of funding, under the Adolescent Family Life Act (Howell, 2007), and funding increased substantially with the amendment of Title V-Maternal and Child Health Block Grant in May of 1996 (Howell). Along with increased funding for abstinence-only programs, this reform of the Social Security Act, Title V, particularly section 510, established standards that must be met to qualify as an abstinence-only educational program. The program must:

1. have as its exclusive purpose, teaching the social, psychological, and health gains to be realized by abstaining from sexual activity.

2. teach abstinence from sexual activity outside marriage as the expected standard for all school age children.
3. teach that abstinence from sexual activity is the only certain way to avoid out-of-wedlock pregnancy, sexually transmitted diseases, and other associated health problems.

4. teach that a mutually faithful monogamous relationship in context of marriage is the expected standard of human sexual activity.

5. teach that sexual activity outside of the context of marriage is likely to have harmful psychological and physical effects.

6. teach that bearing children out-of-wedlock is likely to have harmful consequences for the child, the child’s parents, and society.

7. teach young people how to reject sexual advances and how alcohol and drug use increases vulnerability to sexual advances.

8. teach the importance of attaining self-sufficiency before engaging in sexual activity (Social Security Act, 1935, §502, ¶ 2 ).

In 2000, Special Projects of Regional and National Significance-Community-Based Abstinence Education (SPRANS-CBAE) was approved by Congress (Collins, Alagiri, & Summers, 2002). Similar to the funding allotted in the Maternal and Child Health Block Grant, programs funded under the SPRANS-CBAE must abide by the eight standards of abstinence-only education set forth in Title V. In contrast, grants awarded under the SPRANS-CBAE may be awarded directly to public or private organizations, unlike those awarded under the Maternal and Child Health Block Grant, which allocates its funding based on categorical block grants to states (Collins, Alagiri, & Summers).
With the addition of SPRANS-CBAE, a total of three programs had been created to provide funding for abstinence-only educational programs, and abstinence-only programs still continued to see a rise in funding. In 2006, President Bush increased funding for abstinence-only programs by $39 million, bringing the total to $206 million in funds (Guttmacher Institute, 2005).

Despite the increased funding in abstinence-only education, speculation has risen on its effectiveness in truly delaying adolescents’ initiation of sexual activity and decreasing adolescent pregnancy. Supporters of comprehensive sex education have pushed to integrate an expanded sexual health curriculum in schools and public organizations.

Comprehensive sexual health education is based on the foundation of promoting and encouraging abstinence, but acknowledging that adolescents may choose to engage in sexual behaviors, and therefore, should be informed of potential consequences and ways to protect themselves (CAPS, 1997). Opponents of comprehensive sexual health education cite concerns that educating adolescents about the proper use of contraceptives, promotes sexual behaviors among adolescents (CAPS). Nevertheless, evidence has shown, as cited by Surgeon General David Satcher in June 2001, that comprehensive sex education programs that include information regarding both abstinence and contraceptives can help in delaying the onset of sexual activity among adolescents, reduce the number of sexual partners among adolescents, and increase contraceptive use when adolescents do engage in sexual behaviors (Guttmacher Institute, 2006). Support for
integration of comprehensive sexual health education continues to grow, as approximately 82% of adults support comprehensive sexual health education that includes teachings about abstinence and contraceptives, and more than nine in 10 teachers believe that students should be educated in regards to contraceptives (Guttmacher Institute, 2006). Despite extensive support, no federal program has been created that is dedicated to funding comprehensive sex education that includes information regarding both abstinence and contraceptives (Guttmacher Institute, 2006).

Across the US, States have adopted different policies regarding sexual health education curriculum in public schools. As of 2010, 21 states and the District of Columbia mandate that public schools teach sex education, of which 22 require abstinence be stressed during the instruction, and 17 states, as well as the District of Columbia, require that the curriculum cover contraception (Guttmacher Institute, 2010b). North Carolina, where the study will take place, and which has the 9th highest adolescent pregnancy rate in the nation, mandates sexual health education be taught in the 7th and 8th grades (Durham North Carolina School District, 2010; Healthy Youth North Carolina Coalition, n.d.). Typically abstinence-based, the curriculum of the aforementioned sexual health program, went through a significant overhaul in recent years, as North Carolina lawmakers passed the Healthy Youth Act in 2009 (Healthy Youth North Carolina Coalition). This new act requires that students in the 7th through 9th grades receive “age-appropriate curriculum teaching
both abstinence-until-marriage and comprehensive sexuality education” (Healthy Youth North Carolina Coalition, ¶ 5).

In the nation’s capital, policymakers are making strong strides to review sexual health educational programs and the funding allotted throughout the various programs. The Obama administration recently abolished over $170 million dollars in funding for abstinence-only education programs due to findings that suggest abstinence-only education is ineffective (Stein, 2010). Instead, the President’s Teen Pregnancy Initiative was proposed in the budget for FY 2010, that includes $178 million in competitive grants for “evidenced-based programs, research and evaluation, and an authorization for $50 million in new mandatory teen pregnancy prevention grants to states, tribes and territories” (The National Campaign to Prevent Teen and Unplanned Pregnancy, 2009, ¶ 1). Through this program, the Centers for Disease Control and Prevention (CDC) and the Office of Public Health and Science (OPHS)/Office of Adolescent Health (OAH) are partnering together to pursue and support “medically accurate and age appropriate evidence-based or innovative program models to reduce teen pregnancy” (Centers for Disease Control [CDC], 2010a, ¶1). Those overseeing the initiative are placing their efforts in reviewing educational programs to identify those with evidence-based approaches that are most effective in reducing adolescent pregnancy. The program goals incorporate the following standards to reflect a more comprehensive educational approach. The program will:

1. reduce the rates of pregnancies and births to youth in the target areas.
2. increase youth access to evidence-based and evidence-informed programs to prevent teen pregnancy.

3. increase linkages between teen pregnancy prevention programs and community-based clinical services.

4. educate stakeholders about relevant evidence-based and evidence-informed strategies to reduce teen pregnancy and data on needs and resources in target communities (CDC, 2010a, ¶ 2).

In terms of sexual health education, the Baby Think It Over (BTIO) program teeters on the line between abstinence and comprehensive education. BTIO is a program that incorporates the use of an infant simulator to give adolescents an opportunity to experience, first-hand, the consequences of unprotected sex, and the effects an infant can have on one’s personal, social and academic life. In the recent change to initiate effective sexual health education programs, BTIO requires evidence-based support in its effectiveness in reducing adolescent pregnancy. Although this program may be used on its own, the accompanying curriculum does not include education regarding contraceptives. This could prove beneficial to programs that stand firmly on abstinence-only education. In contrast, integration into an existing sexual health education program would also be an effective means to utilize the BTIO Program.

Roberts and McCowan (2004), as well as Barnett and Hurst (2004), evaluated the use of the Baby Think It Over (BTIO) program alongside a pre-established sexual health curriculum, and found that participating students were
able to recognize the responsibilities in caring for an infant, and found an increase in
students that reported intentions to delay sexual activity and/or pregnancy after the
BTIO experience.

DeAnda’s (2006) study evaluated the Baby Think It Over program
independent of additional curriculum, and examined it’s effectiveness in altering
adolescents’ perceptions of the responsibilities involved in caring for an infant and
an infant’s effect on one’s personal, social and academic life. In addition, deAnda
evaluated the program’s effectiveness in delaying adolescents’ future plans for
pregnancy in regards to educational and professional goals. Results indicated that
students did change their perceptions and delay future intentions regarding early
pregnancy. Further research based on deAnda’s study will help to validate findings
from previous research.

*Problem*

Adolescent pregnancy still remains a concern for young men and women in
the United States today, and various methods of sexual health and pregnancy
prevention education are being incorporated in schools and clinics to combat this
concern. Baby Think It Over is a program used across the nation, but mixed results
have been found regarding its effectiveness in delaying adolescent pregnancy and
altering adolescents’ attitudes towards early pregnancy.

*Purpose*

The purpose of this study is to evaluate the impact of the Baby Think It Over
(BTIO) intervention on adolescents’ academic and social life, emotions, other family
members, and cultural values, as well as adolescents’ plans to delay pregnancy. This is a replication of deAnda’s (2006) study.

Research Questions

1. Does participation in the Baby Think It Over program increase the degree to which the adolescent recognizes that:
   a. caring for a baby affects one’s academic and social life?
   b. family members are affected by an adolescent in the family having a baby?
   c. there are emotional risks for each parent in having a baby during adolescence?
   d. There are values, both cultural and family, that are related to having a baby during adolescence?

2. Does participation in the Baby Think It Over program delay/postpone adolescents’ plans for future pregnancy?

Organizational Framework and Conceptual Models

The study will be based on the Baby Think It Over Program, which utilizes an infant simulator to allow adolescents the opportunity for a hands-on experience to better understand the effects that caring for an infant has on one’s personal, social and academic life. Adolescents are required to care for the infant for an average period of three days, in which the infant cries at various intervals and requires a key, attached by an arm band to the adolescent, to be held in place on it’s back until it ceases crying. The experience is accompanied by a pregnancy prevention education
program that highlights risk factors for adolescent pregnancy, cost of raising a child as an adolescent, and the impact of teenage pregnancy on one’s future career and education (de Anda, 2006).

The Baby Think It Over program, itself, was based on the Attitude Accessibility Model of Learning, and the Experiential Learning Theory (Realityworks, Inc., n.d.). The Attitude Accessibility Model of Learning (Fazio, 1986, 1989) centers on the theory that not only is social behavior determined by one’s interpretation of one’s surroundings, but by one’s predetermined attitude towards whatever is being evaluated, be it a person, place, or object. Essentially, attitudes shape perceptions, guide behaviors, and affect how we process information (Fazio, 1986, 1989). In a similar light, Kolb’s Experiential Learning Theory conceptualizes that experiences guide the learning process, in which knowledge is created through the interpretation and understanding of experiences. Experiences create new knowledge and ideas, shaping future actions (Kolb & Kolb, 2009). Each learning experience rotates through a cycle consisting of concrete experiences, reflection, abstract conceptualization, and experimentation, and each individual begins at a different point in this cycle (Kolb & Kolb, n.d.).

These theories create a conceptual model that is appropriate for this study as they address that experiences and attitudes of individuals, be they of adolescents, adults, or children, shape one’s future perceptions, knowledge and ideas. The Baby Think It Over program, with a basis in these theories, is intended to alter the ideas of
and attitudes towards sex, pregnancy, and infant care in adolescents through hands-
on experience and simulation.

Definition of Terms

Conceptual.

Demographic characteristics identified by deAnda (2006) will be utilized to
provide further information, as these factors may potentially influence students’
plans for future pregnancy and understanding of the risks and life impact of early
pregnancy. These characteristics include: sex, grade level, age, and race/ethnic
background.

Operational.

Demographic characteristics will be measured using a survey created by
deAnda (2006). The survey will measure age, sex, grade level and race/ethnic
background by asking that students fill in the appropriate answers.

Conceptual.

Students’ understanding of the impact of early pregnancy and future plans
for pregnancy is imperative to assess in evaluating their intentions for early
pregnancy. Young adolescents may not have yet arrived at formal operational
thinking, and may have difficulty seeing oneself as a fertile being (deAnda, 2006).
Understanding the responsibility of caring for an infant, including the effects on
one’s social, personal and academic life is essential in adolescents altering their
ideas and opinions of early pregnancy.
Operational.

The degree to which the adolescent realizes that early pregnancy and caring for an infant (a) affects one’s social, personal and academic life, (b) affects family members, (c) carries emotional risks for each parent, and (d) are accompanied by family and cultural values will be measured using the BTIO-1 (Baby Think It Over-1) instrument created by deAnda (2006). The instrument contains 25 close-ended items that are answered using a four point Likert-type scale, ranging from 4=strongly agree to 1=strongly disagree, and will be administered as both a pre- and posttest, with the students acting as their own controls. In addition, participants will be asked when they would “like to have children”, including: (a) never, (b) right now, (c) after junior high school, (d) in high school, or (e) after graduating high school. Adolescents will also be asked to indicate their future plans prior to pregnancy, including: (a) have a well-paying job, (b) attend college, (c) graduate from a junior college, (d) graduate from a four-year college, (e) attend a trade or technical school, (f) get married, (g) have a career, and (h) other-write in a response (deAnda).

Conceptual.

In evaluating the experience students have with the Baby Think It Over program, students’ perceptions of its effects must be evaluated, as well as the researcher’s perspectives of students’ future intentions. Understanding the students’ perceptions of the changes that have taken place in their own behavior,
after the experience, will help to validate the effects others have perceived from survey results.

**Operational.**

Students’ perceptions of how the experience changed their ideas of a) what it would be like to care for an infant, b) when they would like to have a child in regards to professional and academic goals, c) birth control and contraceptives, and d) the time and effort involved in caring for an infant will be measured using BTIO-2 (Baby Think It Over-2), an instrument created by deAnda (2006). This instrument is a posttest-only evaluation measure which will ask students to address items in regards to their perceptions before and after the Baby Think It Over experience. Likert-type questions will be utilized to address items regarding use of birth control and/or contraceptives, effort involved in caring for an infant, and pregnancy in regards to future academic and professional goals, as well as open-ended questions to address students’ views of what caring for an infant would be like and their overall evaluation of the program (deAnda).

**Limitations**

Limitations for this study include that the study will be conducted with students from only one Durham, NC middle school, and that measures will address students’ perceptions and intentions of future behavior, but will not be a longitudinal measure of actual behavior.


Assumptions

Adolescents’ perceptions of their fertility and sexuality, as well as the responsibility and effort in caring for an infant, are altered by their prematurity in operational thinking. For those engaging in sexual behaviors, this delay in their ability to recognize their fertility places adolescents at risk for early pregnancy. Early pregnancy can have detrimental effects on an adolescent’s personal, social, and family relationships, as well as their ability to achieve academic, professional and/or career goals.

Summary

Recent trends have shown an increase in adolescent pregnancy rates, and this is a national problem that continues to plague young men and women throughout the United States. The United States still soars above other industrialized nations in teen pregnancy rates, despite sexual health education efforts. Many educational programs, with various ideologies, have been created to reduce adolescent pregnancy, including the Baby Think It Over program. To responsibly support and invest in the Baby Think It Over program, health practitioners and educators must be able to verify its effect on prolonging adolescents’ plans for future pregnancy. The purpose of this study is to evaluate the effectiveness of the Baby Think It Over program in delaying adolescents’ plans for future pregnancy and in altering adolescents’ ideas of the effort and responsibility involved in caring for an infant. Additionally, the purpose is to also examine the effectiveness of the Baby Think It Over program in increasing adolescents’
awareness of the effects of pregnancy on future academic and professional goals. This is a replication of deAnda’s (2006) study. The theoretical framework is based on Fazio’s (1986, 1989) Attitude Accessibility Model of Learning, and Kolb’s (Kolb & Kolb, n.d., 2009; Kolb, Boyatzis, & Mainemelis, 2001) Experiential Learning Theory (Realityworks, Inc., n.d.). Findings from this study will provide new insight into the effectiveness of the Baby Think It Over program and its credibility as an effective sexual health education program for educators and health care practitioners alike.
Chapter II
Review of Literature

Introduction

Adolescent pregnancy is an issue that continues to be of concern in the United States, and a focus in past and current studies. Adolescents who participate in risky sexual behaviors are not only at risk for pregnancy, but also sexually transmitted diseases, including HIV/AIDS. Previous researchers have indicated that adolescents have not fully developed formal operations, and this lack of full cognitive development could be related to their participation in sexually risky behaviors. The transition from concrete to operational thinking occurs sometime in adolescence, at the beginning of which adolescents are easily able to see themselves as sexual beings, but have difficulty also seeing themselves as fertile beings (de Anda, 2006). A variety of educational and pregnancy prevention interventions have been developed with these cognitive factors in mind, including infant simulators. The Baby Think It Over intervention program utilizes infant simulators that allow students the opportunity to experience the responsibility and burden that caring for an infant entails. Participants are given a hands-on, realistic experience that engages them in the care of an infant and allows them to see the effects on their social, personal, and academic lives. Despite the frequent use of infant simulators, studies
have shown varying results in its effectiveness in changing adolescents’ opinions and perceptions of pregnancy and sexual activity, in the pursuit of adolescent pregnancy prevention and sexual health education.

**Purpose**

The purpose of this study is to determine the effectiveness of the Baby Think It Over intervention in increasing adolescents’ recognition that caring for an infant affects their social, personal, and academic lives, as well as family members. Additionally, the study’s purpose is to determine the effectiveness of the Baby Think It Over Intervention in increasing the number of adolescents that plan to postpone parenthood. This is a replication of deAnda’s (2006) study.

**Organization of Literature**

The literature review consists of selected articles that focus on previous evaluations of the Baby Think It Over intervention, as well as adolescents’ experiences with and perceptions of pregnancy, contraceptives, and sexual activity. The literature to support this study is divided into five sections: (a) organizational framework and conceptual models (b) barriers to contraceptive use, (c) perceptions of and desires for pregnancy, (d) consequences and perceptions of abstinence, and (e) evaluations of the Baby Think It Over intervention.

**Organizational Framework and Conceptual Models**

The organizational framework for this study is based on the Baby Think It Over intervention, in which adolescent participants care for an infant simulator for a short period over days and nights. The infant simulator cries at various,
programmed intervals and requires the participant to insert a key into the simulator’s back each time it cries, and until it stops crying. Episodes of rough handling and neglect are recorded in the infant simulator’s computer, and the records are downloaded after the simulation has been completed. The simulation is supplemented with a pregnancy prevention education program, including risk factors for adolescent pregnancy, cost of raising a child as an adolescent, and the impact of teenage pregnancy on one’s future career and education (de Anda, 2006).

Two conceptual models have been utilized in the development of the Baby Think It Over intervention, and support the use of simulators in adolescent educational programs. These two models are the Attitude Accessibility Model of Learning, and the Experiential Learning Theory (Realityworks, Inc., n.d).

The Attitude Accessibility Model of Learning (Fazio, 1986, 1989) is based on the foundational understanding that attitudes shape perceptions, guide behaviors and affect how we process information. Defining an attitude as an association between a given object and a given evaluation, Fazio conceptualized that social behavior is determined by one’s interpretation of surroundings, as well as attitude toward whatever object is being evaluated, be it a person, event or other object. Predetermined ideas/evaluation of an attitude object determine how one will perceive a situation and the behavior of the attitude object. In order for attitudes to gain such influence on one’s social behavior one must be able to activate this attitude from memory. Situational clues may stimulate the attitude recall or the attitude may be recalled spontaneously. The stronger the correlation between an
attitude object and an attitude, or a higher exposure to or experience with the attitude object can improve one’s ability to recall a particular attitude (Fazio, 1986, 1989).

The Attitude Accessibility Model of Learning is relevant to infant simulators and adolescent sexual health education as adolescents may build stronger relationships between their perceptions and attitudes with early pregnancy and child rearing through a more concrete, hands-on teaching approach. Adolescents have been able to experience a simulation of responsibilities and inconveniences of caring for an infant in such an intense form that their attitudes may be transformed drastically. Future recall may be easier as a stronger relationship can be formed between adolescents’ attitudes and adolescent pregnancy.

Kolb’s Experiential Learning Theory is conceptualized on the foundation that experiences guide the learning process, and originates from the works of Dewey, Lewin, and Piaget (Kolb, Boyatzis, & Mainemelis, 2001). Knowledge is created through understanding and grasping experiences, and then creating new ideas and concepts from the experience, which lead to new implications for future action (Kolb & Kolb, 2009). The center of learning is one’s own personal experience (Kolb & Kolb, n.d.). Based on a cyclical learning process, Kolb theorizes that one learns through concrete experience, reflection, abstract conceptualization, and experimentation. Each individual has a preference and/or strength in his or her learning approach, and enters the learning cycle at different points, but one must
complete the learning cycle through each concept to obtain an effective learning experience (Kolb & Kolb, n.d.).

Kolb’s theory is relevant in the use of infant simulators in that adolescents are able to form their own unique opinions and autonomous approaches to future parenthood through a hands-on experience. Each student experiences the simulation from a different perspective, and therefore, the Baby Think It Over experience allows students to personalize the learning experience. Each adolescent, regardless of learning style, has the opportunity to flourish in his or her learning style in this experience.

In deAnda’s study (2006), adolescents were exposed to a concrete, hands-on experience in order to alter their perceptions of pregnancy and caring for an infant, and were asked to reflect and analyze their experience in anticipation that this might alter future actions. Adolescents’ attitudes towards early pregnancy were measured in regards to perceptions of how an infant affects social, family and academic lives, as well as future plans and goals. From the experience, adolescents were able to draw strong associations between the responsibilities of caring for an infant and their attitudes towards early pregnancy. Using their own experiences, students were able to form approaches and attitudes towards parenting responsibilities, and make decisions regarding future goals and parenthood (Realityworks, Inc., n.d.).
Barriers to Contraceptive Use

Pregnant adolescents can be a significant source in understanding barriers to contraceptive use, as they are probably similar to adolescent females who are at high risk for pregnancy, and may face the same barriers to effective and consistent contraceptive use. The purpose of this study by Breheny and Stephens (2004) was to qualitatively assess barriers to contraception in adolescent females, before or since the birth of their child, and if they had used strategies to overcome these barriers.

Nine adolescent females were recruited and willing to participate in the study. Participants were contacted through midwives, young mothers’ groups, notices in a community paper, and in physicians’ waiting rooms. Willing participants were asked to call and leave their contact information on an answering machine, and agreed to participate by doing so. Eligibility included age under 20 years old and having had a child within the last 18 months. All participants were 18-19 years old, and varied in age (15-19 years old) at the birth of their first child. Only one participant reported more than one child (2 children), and eight of the participants reported their pregnancy was not intended.

Interviews were conducted with each participant at their home residence, using a semi-structured approach. Participants were encouraged to speak freely about concerns or knowledge of contraceptives, which was the primary focus, and both prior and current use of contraceptives. All interviews, except one, were audio-taped and transcribed. One participant wished not to be recorded, so written notes
were taken during and after the interview. Participants were given a $15.00 stipend for their participation and time given for the interview. Copies of interview transcripts were given to participants for comments, though no participant made any comments or changes. Institutional Review Board approval was given by the Massey University Human Ethics Committee and the Manawatu Whanganui Ethics Committee.

Although one participant did not have any experience with contraceptives prior to pregnancy, all participants were using an effective method of contraceptive at the time of the interview. Three participants reported using a contraceptive injection, two were using an oral contraceptive, two were using condoms, and two were using condoms and an oral contraceptive. Most of the participants understood the efficacy of contraceptives, and were aware of the necessary precautions to be taken if they missed a pill, and how many pills could be missed before the contraceptive efficacy was affected. Researchers found that participants faced barriers to effective contraceptive use prior to their pregnancies. Three main themes were identified in regards to barriers to effective contraceptive use: indifference to pregnancy, invulnerability to pregnancy, and forgetting to use contraception. Many participants implied they had little concern over becoming pregnant, so they were unconcerned with using contraceptives. Although they were aware they could become pregnant, this did not factor into their decisions regarding contraceptives. One participant reported that she had condoms available, but did not use them, stating:
“No, I didn’t worry at that time. I didn’t worry at the time because I could have got pregnant the first time. I didn’t care. We did have condoms then but a few times we forgot, but I wasn’t pregnant then. It didn’t bother me so that was it” (Breheny & Stephens, 2004, p. 222).

Another barrier to effective contraceptive use was a perception of invulnerability to pregnancy. Despite the fact that many participants had access to contraceptives (the pill, condoms, etc.), many did not use them because they did not believe they would or could get pregnant. This perception of invulnerability was common amongst participants who were inconsistent with contraceptive use, and those who had not used any form of contraceptives. Occasionally this disbelief was associated with an assumption that she or her partner was infertile, but more often than not, the reasoning was not as concretely theorized. One participant explained, “I just didn’t think it would be easy to get pregnant. It just didn’t sound like an easy thing, you know” (Breheny & Stephens, 2004, p. 222). The same participant explained that although she had never used contraceptives, she didn’t expect pregnancy because “just I wasn’t really ready or anything” (Breheny & Stephens, p. 222).

Forgetting to use contraception was another important barrier identified in the interviews. The pill was often the primary form of contraception, and participants reported refilling the prescription, but did not remember to take the pill every day. Despite understanding the pill must be taken at the same time every day, participants reported they would often miss a pill or two, or take the pill late.
Of the nine women who participated, six reported they were using a birth control pill at the time that they conceived, and most reported that the pill was their primary form of contraception prior to their pregnancy. Some reports from participants showed that the birth control pill might not be the most effective or appropriate contraceptive for some young women. One participant stated:

“Yeh, kind of like, you know, every now and then I’d miss a few, a few days ‘cause I’d be off doing something or whatever and nothing ever came of that; so I kind of figured that it worked for me which is pretty silly really, but you know” (Breheny & Stephens, 2004, p. 223).

Participants discussed different strategies that assisted them in overcoming boundaries to effective contraceptive use, and three themes were identified: adult support, adult responsibility, and using multiple methods of contraception. Some participants found that using a trusted adult for support was an effective strategy to accessing contraception. One participant explained that her aunt accompanied her to her physician to discuss birth control, instead of going to the health department on her own. Several participants implied that their mother was a motivating factor in their decision to begin taking an oral contraceptive. Several participants reported receiving much more support in obtaining birth control after the birth of their child, reporting they had a strong motivation to avoid a repeat pregnancy and were supported by their families in obtaining contraceptives. This seemed to show a status change in women, after the birth of their child, as they were seen to be
sexually active and were now supported in obtaining contraceptives by family who may have not supported access to contraceptives before the birth.

Adult responsibility was also an identified strategy to overcoming barriers to contraceptives. Some participants reported that an adult was helpful when they took over the responsibility of the regular use of a contraceptive, and therefore assisted the participant with overcoming the barrier of forgetting to take the contraceptive. One girl explained how her mother assisted her to remember to take her birth control pills, “My mum kept saying, ‘well, leave your pills by your toothbrush, so whenever you brush your teeth in the morning you take a tablet” (Breheny & Stephens, 2004, p. 225). The same participant explained that it took some time for her parents to place her on a birth control pill, which may reflect the developmental stage of adolescents, when they believe the parents should be responsible for contraception, rather than themselves.

Using multiple methods of contraception was also a strategy for overcoming forgetting to use contraception. Many of the participants reported using an oral contraceptive as their primary form of contraception, but also supplemented, occasionally, with condoms or emergency contraceptives. In fact five of the mothers reported they had used an emergency contraceptive prior to their pregnancy. Those who had used emergency contraception were not able to precisely identify why they had used it on some occasions after unprotected sex, and other occasions not. Three had reported that their partner had suggested it at one point, and one participant explained that she made her decision to use emergency contraception based on
“how much of a calamity it would be if I got pregnant” (Breheny & Stephens, 2004, p. 225).

The study results indicated that adolescent females are not poorly educated regarding contraception or fertility, although the education they’ve received is not effective in ensuring consistent contraceptive use. Because of social development they may not perceive themselves as child bearers, and families may not recognize them as sexually active.

Examining the relationship of inconsistent contraceptive use to pregnancy desire amongst adolescents is necessary to better understand a potentially significant determinant of adolescents’ sexual behaviors. The purpose of this study by Davies et al. (2006) was to examine the influence of pregnancy desire, as well as other determinants on contraceptive use in low-income African-American adolescent females. The framework for the study was the Adolescent Decision-Making Theory (Gordon, 1996).

The sample selected for the study represented a cross-section of adolescents residing in low economic neighborhoods in Birmingham, Alabama. Participants were selected from two adolescent medicine clinics, four health department clinics, and multiple health classes from five high schools. These sites were in neighborhoods characterized by high rates of unemployment, substance abuse, violence, teen pregnancy, and sexually transmitted infections. Potential participants were screened as a part of an HIV/STI prevention study and identified if they met eligibility for this study. A total of 1130 female adolescents were screened for
eligibility, and of those, 609 were eligible to participate. Requirements for eligibility included: African-American ethnicity, female, age 14 to 18 years, unmarried, and reported sexual activity within the previous six months. A total of 522 adolescents participated in the study; an 85.7% baseline participation rate. The University of Alabama Institutional Review Board approved the study protocol prior to implementation.

Both a baseline and six-month follow-up assessment were used from a randomized controlled trial that was evaluating the effect of an HIV-prevention program. Data were collected at the University of Alabama at Birmingham Family Medicine Clinic, using a self-administered questionnaire and one-on-one interview. Socio-demographic data were collected from the questionnaire, and personal data were obtained during the interview, in an effort to increase the validity of responses on sensitive issues and minimize the burden on participants. In the interviews, two questions were used to address consistency of contraceptive use at both the baseline and 6-month follow-up: “Of the last five times that you had vaginal sex, how many times did you use a condom?” and “Of the last five times that you had vaginal sex, how many times did you use a contraceptive (birth control) other than a condom?” Responses were reported as 0/5 to 5/5, with each “point” indicating they had used a condom or contraceptive at one of their last sexual encounters. In all assessments, a rate of less than one was identified as inconsistent contraceptive use. Other areas assessed in the one-to-one interview included: the adolescent’s number of lifetime sexual partners, whether they had sex with someone other than their
partner in the previous six months, and if they believed their partner had sex with someone else in the previous six months. The questionnaire included questions that assessed if the adolescents had ever been pregnant, had a sexually transmitted infection, current desire for pregnancy (using a 5 point scale from “not at all” to “very much”), and an item to assess their partner’s desire for pregnancy. A four-item scale was used to assess their communication with their partners regarding sex-related topics (α = .86), which used a four-point scale that ranged from “never” to “often”. The Rosenberg self-esteem scale was used to assess the adolescents’ self-esteem (α = .79).

One hundred and twelve (21%) had positive pregnancy tests at the baseline assessment, and 35 (8.5% of the remaining 410) at the 6-month follow-up. This left only 375 biologically confirmed nonpregnant adolescent females to be included in the analysis for the study.

Participants averaged 16 years of age (SD =1.2). Twenty-eight percent of the participants reported a previous sexually transmitted infection at the baseline assessment, and 32.6% reported a previous history of pregnancy. Of the total 375 adolescents that participated, 31% were found to be inconsistent contraceptive users at the 6-month follow up.

Through bivariate analysis, the researchers identified six variables that were significant predictors of future inconsistent contraceptive use: previous inconsistent contraceptive use, a desire to become pregnant, perception that their partner desired them to become pregnant, a greater total number of sexual partners, less
frequent communication with their partners regarding sexual prevention issues, and belief their partner had been monogamous. Participants who reported these behaviors or perceptions at the baseline assessment were more likely to report inconsistent contraceptive use at the six-month follow-up. Both a history of pregnancy (p = .60) and a history of a sexually transmitted infection (p = .52) were found to be insignificant in predicting future contraceptive use.

Using the significantly correlated variables in stepwise logistic regression, the researchers were able to create a multivariable model that identified four variables that independently predicted future inconsistent contraceptive use at the six month assessment: inconsistent contraceptive use at the baseline assessment (p < .01), a higher total number of sexual partners (p = .01), a higher baseline desire to be pregnant (p = .02), and less frequent communication with her partner (p = .03).

This study found that there are potentially many factors that may influence contraceptive use in adolescents, and that barriers to consistent contraceptive use may persist over time. Understanding and identifying these barriers can help in better catering and designing pregnancy prevention education and health interventions for adolescent females.

Perceptions of and Desires for Pregnancy

Studies have shown that adolescent females’ desire for pregnancy has a correlation with their perceptions of their male partner’s desire for pregnancy. Although adolescent pregnancy has often been looked at from the young female perspective, little is known about the young male perspective of pregnancy and
child rearing. The purpose of this study by Davies et al. (2004) was to qualitatively examine the perceptions of young African American males toward issues of pregnancy and early child bearing. The framework for this study was based on established focus-group research methodology by Kitzinger (1994, 1995), Patton (1990), Stewart & Shamdasani (1990), and Pope, Ziebland, & Mays (2000) (as cited in Davies et al., 2004).

The study was conducted in Birmingham, Alabama with male partners of adolescent females who became pregnant while participating in a randomized controlled trial that was funded by the Institute of Mental Health. The parent study screened and identified African American sexually active adolescent females (n=522) in adolescent medicine clinics, health department clinics, and school health classes. The recruitment sites were located in lower socioeconomic neighborhoods in Birmingham that had high rates of STD's, violence, teen pregnancy, substance abuse and unemployment. Eligibility for the parent study included: African American, female, 14-18 years old, unmarried, and sexually active within the last 6 months. Of the adolescent females selected, 67 (13%) were mothers, and were invited to bring the father of their child(ren) to participate in separate focus groups that focused on early parenthood. Of the 67 contacted, 55 replied, and 42 came to the focus groups. Sixteen of the 44 mothers brought the fathers of their children, 8 brought their current partners who were fathers to children other than theirs, and 2 brought their partners who were not fathers, but were assisting with raising their children. A total of 26 young men participated in one of the four focus groups. All
young men who participated reported being Black or African American. Ages were not requested (as there was concern that age would implicate some as violators of the Alabama statutory rape law). The researchers estimated the ages ranged from 17 to 23. Two of the participants did not report being a father, as one had a girlfriend who had not yet delivered her child, and the other did not father a child, but was helping his girlfriend raise her children. The remaining participants reported fathering one to four children.

Four focus groups were conducted for each gender over the course of two consecutive Saturdays, and each lasted approximately 90 minutes. The moderator for the focus group used a discussion guide, in order to facilitate the discussion, as the observer took note of the participants’ non-verbal reactions and controlled the tape-recording equipment. A script was followed throughout the discussion to incorporate the focus-group methodology and lead the discussion. Open-ended questions were utilized to explore the intrapersonal, interpersonal, and community factors that may influence the participants’ sexual behavior and childbearing. Each of the participants received a stipend of $45.00 for their participation. The University of Alabama at Birmingham Institutional Review Board approved the protocol prior to implementation of the study.

Throughout the four focus groups, three domains were identified embedded with three themes each. Domains identified among the young men included: (a) desire for pregnancy, (b) attitudes regarding father/child involvement, and (c) perceived social support as teen fathers.
Three themes were integrated into the first domain, desire for pregnancy: (a) perceived readiness for the responsibilities of fatherhood, (b) pregnancy intentions of young men, and (c) perceived intentions of their partners. Most of the young men reported they were not ready to be fathers, noting fatherhood forces social and economic priorities to change. Fourteen participants reported that pregnancy was not the desired outcome when their partners became pregnant, while 12 participants reported that they desired the pregnancy when it occurred. The participants reported numerous reasons for desiring pregnancy, including having a strong physical attraction toward a woman, as a way to control their female partners and prevent them from meeting other men, and simply liking children. Ten of the participants stated that they felt their partner desired pregnancy, though two stated their partners did not as they already had more than one child. A remark that females want to get pregnant in order to claim a man was made by three of the participants.

The second domain, attitudes regarding father/child involvement, contained the following themes: (a) participants’ involvement with their own fathers, (b) attitudes regarding the benefits of a father’s involvement, and (c) involvement with their own children. Only four of the participants reported growing up with an involved father, while 21 reported that they grew up without a father present. Reasons cited for lack of a paternal involvement included perceived paternal disinterest, poor relationships with the participant’s mother, and incarceration. Participants cited instituting effective discipline, providing financial security,
stability, wisdom and understanding as benefits of an involved father. Some participants even described how a father could teach his son about sex, “how to be a man”, “smoking reefer”, and “about getting a girl pregnant” (Davies et al., 2004, p.420). A perception that it was important to be involved if the child was a girl was identified, as it was perceived that they would need to be protected from males. Participants also felt that children learn respect and responsibility by observing their parents. Of the 26 young men, 15 reported current involvement in their children’s lives. Seven of the men stated their involvement depended on the attitude of the child’s mother and/or her family toward them. Three men stated that the child’s mother and/or family prevented them from being involved in the child’s life.

The third theme, perceived social support as teen fathers, contained the following themes: (a) parental support for teen fathers, (b) peer support for teen fathers, and (c) peer support for teen mothers. Most participants reported a high level of family support, which was often accompanied by lectures regarding responsibility and jobs/working. Several of the participants described their parents as being excited, particularly when the child arrived. One concern cited by many participants was their parents’ concern that the child was in fact his, and several participants cited negative reactions from their parents because they were concerned their son would not be involved in the child’s life. Many participants showed a sympathetic and nurturing attitude towards their peers who were becoming fathers, citing society’s negative stigma of teen fathers as their cause for
support. Some found that pregnancy served as a warning sign to other friends, for numerous reasons, including a warning to be more careful in their sexual behaviors. All participants were in agreement that pregnancy disrupts a teenage mother’s life more so than a teenage father’s. Much less support was noted for female peers who became pregnant. Many reported that their reaction to pregnancy depended on whether the female peer could identify the father of the child, expressing derogatory remarks towards female peers who could not.

Researchers found that of the total 26 young men who participated in this group, 39% admitted they desired to father a child, and most participants were generally favorable about becoming a father at an early age. In contrast, participants who denied they had desired the pregnancy made no explanation of what efforts they made to avoid pregnancy. Participants displayed a general distrust and disapproval toward adolescent mothers, often implying that young women desired pregnancy in order to manipulate their male partner, and often got what they “wanted” and/or “deserved”.

Male adolescents have differing perceptions of early pregnancy, with some relating impregnating a girl as a sign of one’s manhood, to some noting the negative consequences and additional responsibility of caring for an infant. The purpose of this study by Rosengard, Phipps, Adler, and Ellen (2005) was to assess adolescent males’ intentions to get someone pregnant, as well as their perceived likelihood of getting someone pregnant in the near future. The researchers were also interested in the interplay between intending to get someone pregnant and the likelihood of
getting someone pregnant, and its association with reported condom use and intentions to use condoms in the future. The framework for the study was based on the Theory of Planned Behavior (Ajzen, 1985).

Participants were chosen from a municipal sexually transmitted disease clinic located in northern California between June 1996 and June 1998. Adolescent males were approached prior to their appointments in the clinic waiting room. A total of 101 males (90% of the total eligible) were willing to participate and met the following eligibility criteria: age between 14 to 19 years, English-speaking, vaginal or anal intercourse in the previous 3 months, and local residence within the metropolitan area. The University of California’s institutional review board approved the study’s protocol.

Data for the study were collected as a part of a larger study examining perceived risk of sexually transmitted diseases and pregnancy, as well as sexual decision-making. Written consent was obtained from each participant. Structured interviews were conducted by a qualified research assistant, followed by a corresponding questionnaire. Interviews assessed demographics, perceived risk of sexually transmitted diseases, attitudes towards condom use, perceived social norms regarding condom use, condom self-efficacy, and intentions to use a condom. Also included in the interview were questions about pregnancy attitudes/intention, perceived risk of pregnancy, and abortion intentions. Demographics included age, gender, racial/ethnic group, and mother’s level of education. Condom variables were measured using four multi-item scales: (1) perceived condom efficacy (2
items, \( \alpha = .92 \), (2) trust-related issues associated with condom use (4 items, \( \alpha = .71 \)), (3) negative aspects of condom use (6 items, \( \alpha = .84 \)), and (4) positive aspects of condom use (6 items, \( \alpha = .62 \)). Condom self-efficacy was assessed using a 6-item scale (\( \alpha = .89 \)). Scales designed for a larger study were used to assess attitudes towards pregnancy and pregnancy intention. Three 5-point scales were used to assess how (a) worried, (b) upset, and (c) happy a participant would be if he got someone pregnant within the next 6 months. A total score was determined by calculating the mean of the three scales. High scores indicated a more positive attitude towards pregnancy. Pregnancy intention was assessed by two items that addressed (a) how likely he thought he would get someone pregnant in the next 6 months, and (b) to what degree he planned to get someone pregnant in the next 6 months, and were measured using a 5 point Likert-type scale. Perceptions of the risk of pregnancy were assessed by asking participants if (a) their partner used birth control pills every day or if (b) their partner did not. Abortion intentions were assessed by asking participants if their partner became pregnant within the next 6 months if they would encourage her to get an abortion, and how surely they would or would not encourage her to have an abortion (2 items, \( \alpha = .92 \)). Responses were recorded using a 5-point Likert-type scale. Using a 5-point Likert-type scale, intentions for condom use were assessed by asking participants four questions: (a) how often would you use condoms, (b) how likely is it that you would use condoms every time, (c) how sure are you that you would use condoms every time, and (d) how likely is it that you would not use condoms in the next 6 months. A high score
indicated a greater intention from participants to use condoms in the future (α = .93). Participants were also asked how frequently they or their partner used condoms in the previous 6 months.

The male participants ranged in ages from 15 to 19 years, with an average age of 18.13 years (SD 1.11). The majority of participants were African-American (43%). Of the remaining participants, 15.8% were Caucasian, 14.9% were Latino/Hispanic, 10.9% were Asian American, and 13.9% reported mixed or other race/ethnicity. Thirty-two participants reported their mother’s highest level of education as high school graduate (34.8%), and 18 (19.6%) had graduated from college.

In regards to pregnancy intentions, there was a significant difference found in responses to questions of planning versus likelihood of getting someone pregnant ($x^2= 24.33; df = 1; P<0.0001$). Most participants indicated they had no plans to get someone pregnant within the next 6 months (75.2%), although 56.4% indicated some likelihood that they would get someone pregnant within the next 6 months.

Through a series of student t tests, researchers found that participants who had indicated plans for pregnancy in the next 6 months also reported their mothers had lower levels of education, had more negative attitudes towards condoms’ effects on trust in relationships and less negative attitudes towards getting someone pregnant. This was in comparison to participants who did not indicate intentions to get someone pregnant within the next 6 months. Similarly, participants who reported a likelihood of pregnancy within the next 6 months also reported lower
educational levels of their mothers than those who reported no likelihood within the next 6 months. These participants also reported “less self-efficacy to use condoms in challenging situations, less negative pregnancy attitudes, greater perceived risk of getting someone pregnant who is using birth control pills, and weaker intentions to use condoms in the future” (Rosengard, et al., 2005, p. e416).

Categories were created to assess the interplay between pregnancy plans and pregnancy likelihood: (a) planning and likely to get someone pregnant, n= 24 (23.8%), (b) not planning, but likely to get someone pregnant, n=33 (32.7%), and (c) not planning and not likely to get someone pregnant, n = 43 (42.6%). Only one participant reported that he was planning but not likely to get someone pregnant within the next 6 months, which was too small to include in the analysis. Participants who reported planning and likely to get someone pregnant in the next 6 months were found to report lower educational levels of their mothers and had less negative attitudes towards pregnancy compared to participants who indicated that they were not planning or likely to get someone pregnant within the next 6 months.

This study showed that although most participants indicated no plans for future pregnancy within the next 6 months, there was a large variability in reported likelihoods that they would get someone pregnant. This inconsistency could be related to ambivalence about pregnancy, or a lack of confidence in their ability to prevent pregnancy, as they may doubt their ability to effectively use contraception for different reasons. This behavior may prove to show a lack of commitment to using contraception or a lack of motivation to avoid pregnancy.
A variety of educational programs have focused on preventing first and subsequent pregnancies in adolescents, addressing the continued concern of adolescent pregnancy in the United States. Understanding adolescents’ attitudes towards pregnancy can help guide future adolescent pregnancy-prevention efforts and educational programs. The purpose of this qualitative study by Rosengard, Pollock, Weitzen, Meers, and Phipps (2006) was to explore the disadvantages and advantages of teenage pregnancy perceived by pregnant adolescents to better understand adolescents’ attitudes towards pregnancy.

A convenience sample was selected from the Women’s Primary Care Center at Women and Infants’ Hospital between February 2002 and August 2004. Eligibility requirements included that the participant be 19 years or younger, female, pregnant, and presenting at the center for initial prenatal care. Of those screened, 247 pregnant female adolescents (62% of those eligible) agreed to participate in the study. Participants between the ages of 12 to 17 had inclusive parental consent prior to participation in the study. Compared to the population served at the center, the sample did not differ significantly in racial/ethnic or age composition. This study was part of a larger study, which was initially approved by the Women and Infants’ Hospital Institutional Review Board in December of 2001.

A research nurse or trained research assistant, using a structured questionnaire, interviewed participants during their first prenatal visit at the center. Items discussed in the interview included: demographics, pregnancy intentions, feelings/reactions about their pregnancy, contraceptive use, decision-making
process regarding pregnancy, support system, living situation, sexual experiences, school and extracurricular involvement, reproductive health history, substance use behaviors, and abuse history (Rosengard, et al., 2006). After the interview, participants were given a one page open-ended questionnaire to complete.

Participants were asked their age, ethnicity (Hispanic or Non-Hispanic) and race during the interview. To measure pregnancy intention, participants were asked: “Think back to the time just before you were pregnant, and how you felt about pregnancy at that time. When did you want to be pregnant?” (Rosengard, et al., 2006, p. 505). Participants who reported immediately, in the next few months, or next year were categorized as having intended their current pregnancy. Those who reported more than a year or that they did not want to get pregnant were categorized as not having intended their current pregnancy. Participants were also asked if they had ever been pregnant, how many children they had, and if they had previously been pregnant they were asked if they had ever had an abortion and/or a miscarriage. To address the participants’ perceptions of the disadvantages and advantages of teenage pregnancy, two open-ended questions were asked (Rosengard, et al., 2006, p. 505).

1. Considering everything, what do you think are the bad things or disadvantages about having a baby now instead of waiting until you are older?

2. What do you think are the good things or advantages about having a baby now instead of waiting until you are older?
The majority of participants were 18 to 19 years old (42.5%), and reported Hispanic ethnicity (47.3%). Of the 247 participants, 48 (23.5%) reported that their pregnancy was intended. Seventy-three (29.8%) participants reported they had a previous pregnancy, of which 18 admitted to a previous abortion, and 31 admitted to a previous miscarriage. Thirty-six (14.7% of the total sample) reported they had at least one child already.

In regards to teenage pregnancy advantages, a variety of responses and themes were uncovered. Some participants reported they knew of no advantages, and that girls should wait to have children. Enhancing relationships and building a family was an identified theme, as participants cited love/excitement for babies, possessing something, having someone to love and to be loved by, being closer in age to their child, and having family/partner support as advantages. Some participants spoke of positive changes, reporting that an infant would help them to grow up, to take more responsibility in their lives, to mature, and to stay away from drugs/alcohol. Those who cited more practical considerations reported having a child as a teenager would be beneficial as they would be younger and more energetic, would have free time later in life to pursue future goals, and get pregnancy over and done. Some reported they were happy to be pregnant, as sometimes women face issues with fertility.

In regards to teenage pregnancy disadvantages reported by participants, multiple themes were also identified. Again, some participants reported no disadvantages to teenage pregnancy, with one participant stating she was
“completely ready for this” (Rosengard, et al., 2006, p. 507). Another theme noted was a lack of preparedness, with participants citing being too young, lacking stability, no financial support, poor life experience, poor education and feeling alone in caring for the child as disadvantages. Others reported pregnancy as causing changes or interferences in their lives, citing interferences such as putting their lives on hold, revising their goals, making their daily lives more challenging, and missing out on typical and/or important teenage experiences as disadvantages. Changes that were viewed as disadvantages included physical changes to their body and the requirement of having to take on additional responsibilities in caring for a child. A theme of concern for others’ views was also noted, with participants citing negative effects of how others may view them because they are having a child as a teenager.

Themes were also identified amongst subgroups, including participants in the same age or ethnicity group, those who had an intended pregnancy, those that did not, and those with similar reproductive and/or parenting history. In regards to age, teen pregnancy was seen to improve relationships and connections in the younger participants (12-15 & 16-17), as compared to those 18-19, who more often cited more practical considerations in regards to teen pregnancy. Researchers found that older teens seemed more able to acknowledge their ill preparedness, but actually less likely to identify the changes and interferences with future goals.

Hispanic participants, as compared to non-Hispanic participants, placed more emphasis on enhancing relationships as an advantage of teenage pregnancy, as it was the most frequent theme identified in this group. As for non-Hispanics,
enhancing relationships and connections and practical considerations had equal emphasis. Lack of preparedness was found more likely to be identified as a disadvantage by non-Hispanic participants, though both groups equally emphasized changes and interferences as a disadvantage.

Participants who reported having an intended pregnancy reported enhancing relationships and connections, positive changes/benefits, and practical considerations as advantages more frequently than those that did not have an intended pregnancy, and were more than twice as likely to report no disadvantages to teenage pregnancy. They were also less likely to report a lack of preparedness as a disadvantage to teenage pregnancy.

Participants who admitted to a previous pregnancy were found to be slightly more likely to report enhancing relationships and connections as an advantage, more likely to report no disadvantages to teenage pregnancy, and less likely to report changes and interferences as disadvantages, as compared to those who were experiencing their first pregnancy. For those that already had at least one child, the advantage most reported was that teenage pregnancy enhances relationships and connections, and the most reported disadvantage was changes and interferences.

The researchers determined that participants identified more disadvantages than advantages to teenage pregnancy, and disadvantages were quite often emphasized more by the sample as compared to advantages. This may be related to the negative messages society provides in regards to teenage pregnancy. A difference of emphasis in themes was shown between age groups, ethnic groups,
those that intended pregnancy, those who did not, and those that had similar reproductive and/or parenting history. This shows that adolescents cannot be viewed as a homogenous group in which one, undifferentiated educational intervention would be effective and appropriate.

As in previous studies, personal relationships have shown to be a significant influence in adolescent decision-making, particularly sexual behavior decisions, which can affect adolescents’ risk for STDs and early pregnancy. Some adolescent male fathers have shown a desire for their partner’s pregnancy, particularly in economically disadvantaged communities, which may have influenced their female partner’s own desire for pregnancy. The purpose of this study by Heavey, Moysich, Hyland, Druschel, and Sill (2008) was to examine the relationship between adolescent females’ desire for pregnancy and perceptions of their male partners’ desire for pregnancy. The framework for the study was Connell’s Theory of Gender and Power (1987) (as cited in Wingwood & DiClemente, 2000).

Participants were selected from two obstetric care sites within an urban demographic area referred to as the “crescent” of poverty in Rochester, New York. A total of 92 female adolescents participated in the study, and were either currently pregnant or awaiting pregnancy test results. Most participants were eligible to receive Medicaid or subsidized health insurance, and were from poor socioeconomic environments. The sample was racially diverse, and ages ranged from 14 to 19 years of age. Due to the nature of the care the girls were seeking at the clinic, participating minors were considered emancipated under New York state law, which dismissed
the need for parental consent. Written informed consent was obtained from each participant, and the study was approved by the State University of New York at Brockport Institutional Review Board.

Prior to administering a survey to participants, a 31 question pilot study was developed that closely resembled a survey by the New York State Family Planning Grant. Items addressed in the survey included: demographics, pregnancy desire, educational level, student status, previous pregnancies, religious background, drug use, contraception use and pattern of use, and required clinic services. Additional information collected included current male partner’s age, oldest male partner’s age, number of sexual partners, previous and current partners’ desire for pregnancy, age at first sexual intercourse, and partner’s age at first sexual intercourse. Participants received a $15.00 gift card for completing the survey.

Participants who were pregnant (n=78) completed a different set of questions than participants who were not pregnant, and therefore were separated in the analysis. Of the total sample, 78 participants were already pregnant when the study took place. The average age of participants was 17 years old, while the average male partners’ age was 20. Most participants indicated a racial minority group, as 16 (17.4%) reported Hispanic ethnicity, and 56 (60.9%) participants as African American. Eighty-two (89%) participants admitted to not using a form of contraception, with 77 (84%) reporting their failure to use a contraceptive was because they were pregnant. Participants were also asked how often they would typically use birth control, with 28 (30%) reporting sometimes, and 25 (27%)
reporting never. Amongst the participants who were not pregnant at the time of the study, 2 (14%) reported that they currently wanted to be pregnant, 5 (36%) wanted a pregnancy in the next 2 years, and 7 (50%) did not want to become pregnant for at least the next 3 years. Of those same participants, 9 (64%) reported their current partner wanted them to become pregnant, and 11 (79%) reported they had a previous partner(s) that wanted them to become pregnant.

Participants who reported they were pregnant were asked to rate their level of happiness when they discovered they were pregnant using a 5-point scale that ranged from very happy to very unhappy, after which they were asked to rate their male partner’s feelings towards the pregnancy using the same scale. Thirty-seven (47%) of the girls reported their male partner had the same level of happiness towards the pregnancy. Of the mismatched pairs, 8 (20%) reported their male partner was less happy towards the pregnancy, and 32 (80%) reported their male partner had a higher level of happiness towards the pregnancy.

A univariate analysis was performed and found independent associations between student status (P = .038), smoking (P = .034), and positive pregnancy feelings. Other analysis found there was a significant association between the participants’ feelings about pregnancy and the male partners’ feelings about the pregnancy (Spearman’s correlation = 0.326; P = .004). Researchers used the McNemar’s test to find that the male partners were more likely to feel positively about the pregnancy than the female participants (P = .017). Participants who reported a male partner who felt positively towards their pregnancy were four
times more likely to report wanting to be pregnant currently or sooner, as compared to those that reported an unhappy or ambivalent partner (OR = 4.354; P = .02).

Researchers were surprised to find that males were more likely to have a higher perceived happiness towards pregnancy than their female counterparts, which has an association with female pregnancy desire. This may indicate that perceived male partner pregnancy desire is a stronger risk factor for adolescent pregnancy than even female desire for pregnancy. This study did not ask the male partners directly about their desire for their partners’ pregnancy, but instead asked the participants about their perceptions of the male partners’ desire. This may in fact be a more important variable than what the male partner desires.

Helping adolescents to create and develop future, long-term goals is a significant factor in pregnancy prevention, encouraging students to postpone early pregnancy to pursue their future plans. However, studies have not shown if there is a correlation between future goals and aspirations and adolescents’ sexual behavior. The purpose of this study by Jumping-Eagle, Sheeder, Kelly, and Stevens-Simon (2008) was to determine if conventional, long-term goals, such as planning to attend college, independently affect adolescents’ sexual behaviors or if there is any relationship directed by the perception that pregnancy is an impediment on future goals. The framework was based on the Adolescent Risk Behavior conceptual framework (Jessor, 1991).
The study took place between January 1999 and June 2001, and was conducted at three urban adolescent health clinics located in the Southwest. Of the three clinics, one was hospital-based, and the other two were located in neighborhood health centers. Eligibility for the study required that participants were younger than 20 years of age, had sexual intercourse, had never been pregnant, and used an unreliable form of contraceptive (i.e., rhythm, douching, or withdrawal) or no method at all, in one of the last four occurrences of heterosexual, vaginal intercourse. A total of 351 young women agreed to participate in the study (97% of the young women who qualified to participate in the study). The Institutional Review Board of the University of Colorado Health Sciences Center approved the study, waiving parental consent. All participants signed a consent form upon enrollment in the study.

A self-administered questionnaire was given to participants with items that were selected from another questionnaire developed for a study of adolescents' pregnancy and child rearing attitudes. Two of the questions pertained to the participants' goals, asking about educational plans and the other asking about vocational plans. Two questions pertained to the adolescents' perceptions of the achievability of their educational and/or vocational goals, with possible responses ranging from “unlikely” to “very likely” (scored 0 to 3).

A five-item scale was used to measure and quantify the adolescents’ perceptions that teenage pregnancy impedes achieving goals. Each of the five items asked the participants to select which of the three statements best represented their
feelings. Items addressed if pregnancy would make it more difficult to achieve school and work-related goals, as well as unspecified plans.

Five outcome variables were used to measure pregnancy avoidance behaviors and attitudes amongst the adolescents. The first assessed participants’ contraceptive use at the last episode of sexual intercourse and the second outcome variable assessed the participants’ intentions to avoid pregnancy, using a six item, three point scale (Cronbach's alpha, 0.86), quantifying the degree to which the participants desired to avoid pregnancy. The third outcome variable ascertained whether the participant would have an abortion if she became pregnant (“yes” or “no” response). The fourth outcome variable assessed if the participant planned to use a highly effective (prescriptive) contraceptive. The fifth outcome variable was a composite index that consisted of the other four measures, with a range of zero to four (one point for each affirmative classification).

Demographic data were collected from participants, including age, racial/ethnic background, living arrangement, sexual experience, and education. Participants were also asked about past or current proscribed behaviors (i.e., illicit drug use, drinking, truancy, running away from home, fighting, or being arrested/jailed).

Participants ranged from 10.8 to 19.6 years old, with a mean age of 16.4, and the majority reported Hispanic ethnicity (55%). Of the young women who reported having aspirations or goals, 8 out of 10 believed that their goals were achievable, yet only 4 out of 10 believed that pregnancy would make achieving their goals more
difficult. Researchers also found that only one third of the participants used a form of contraception during their last episode of sexual intercourse, and only 50% of the young women were sure they wanted to avoid pregnancy. One in seven participants admitted they would get an abortion if they did become pregnant. Seventy-five percent of the participants reported that they planned to use a prescription contraceptive.

Researchers found that participants who reported goals were less likely to be Hispanic, African-American, or Native American (79% vs. 88%, p=.03), or to be living with their boyfriends (9% vs. 40%, p=.02). Participants who believed pregnancy would impede achieving their goals were more likely to be in school with passing grades or high school graduates. With an adjustment for background differences, 46% of participants with educational and/or vocational goals believed pregnancy would impede achieving their goals, and 32% who did not have future goals agreed (p<.05; odds ratio 1.7). With an adjustment for educational status, participants who believed pregnancy was an impediment were more likely to report conventional goals than those who did not perceive pregnancy as an impediment (81% vs. 69%, p<.05; odds ratio, 1.8).

Participants with reported goals and/or aspirations were also more likely to have used contraceptives at last sexual intercourse (odds ratio 1.9). As compared to participants who did not perceive pregnancy as an impediment to future goals, participants who did were more likely to have used a contraceptive at last sexual intercourse (odds ratio 2.3), intended to avoid pregnancy (9.6), planned to have an
abortion if they became pregnant (8.7) and planned to use a prescription contraceptive (2.1). These participants were also found to score higher on the pregnancy avoidance index.

The study findings were as expected; about half of the young women who had educational and/or vocational goals perceived pregnancy would make achieving them more difficult, and having goals was not an independent predictor of outcomes. Results indicated that despite young women reporting conventional goals and aspirations, this was not associated with pregnancy avoidance attitudes, unless goal achievement was explicitly correlated with pregnancy prevention.

Consequences and Perceptions of Abstinence

Studies highlighting teenage sexual behavior have focused on adolescents’ perceived disadvantages and advantages of engaging in sexual activity, yet little research has focused on the consequences of adolescents refraining from sexual activity. The purpose of this study by Brady and Halpern-Felsher (2008) was to examine the consequences of adolescents refraining from sexual activity, and whether the social and emotional consequences differed over time, by gender, and by sexual experience. The framework used was the Model of Early Sexual Decision Making (Michels, Kropp, Eyre, & Halpern-Felsher, 2005).

As part of a larger study examining adolescents’ sexual behavior, ninth grade students were recruited from two California public high schools. The original study was introduced to students in the fall of 2002, and at that time, 1189 students were eligible to participate. All eligible students were given a consent packet for their
parents, of which 665 were returned signed, and of those 665 students, 637 completed surveys during the first episode of data collection.

In the first assessment, which occurred during the fall of the students’ ninth grade year, 612 students (25 of the original 637 did not provide this information) provided information in regards to their sexual activity and the positive and negative consequences they may have experienced as a result of avoiding sexual activity. In the following spring 575 (94% of 612) students completed surveys, 512 in the fall of the 10th grade year, and 516 in the following spring of the students’ 10th grade year. In the first episode of data collection (fall of ninth grade) the mean age was 15 years (SD = 0.5) and over half of participants were female (58%). Most participants were Caucasian (40%), while 17% were Latino, 22% were Asian/Pacific Islander, 3% were African American, and 18% reported multiethnic or other ethnicity. Institutional Review Board approval was obtained, as well as written parental permission and adolescent assent, prior to conducting the study.

Students were surveyed in the fall and spring of the academic years 2002-2003 and 2003-2004 using self-administered surveys. Students’ sexual experiences were assessed at each point, and students were considered to be sexually experienced if they had ever engaged in vaginal and/or oral sex. Students were categorized into “sexually experienced throughout study” (n=344, 56%), “sexually experienced at the start of the study” (n=135, 22%), and “sexually experienced by the end of the study” (n=133, 22%). At each time point, students were asked whether they had experienced consequences from refraining from sexual activity.
Consequences that were addressed at all assessment points were “had a good reputation”, and “had your friends proud of you”, while “felt responsible” was assessed at only the first three time points. Negative consequences that were addressed at all assessment points were “had a partner get angry” and “had a bad reputation”. “Felt regret” and “felt left out of your group of friends” were two consequences that were not assessed until the 3rd and 4th assessment points, and “felt like you let your partner down” was only assessed at the 4th point. All survey items addressing consequences from refraining from sexual activity were followed with “because you did not have sex” or “for not having sex”.

Researchers found that reports of only positive consequences from refraining from sexual activity, regardless of sexual experience, declined significantly over time. Students reporting only positive consequences dropped from 46% to 24% from the 1st to 4th assessment among students who remained sexually inexperienced throughout the study, while those who were sexually experienced at the start of the study dropped in reports of only positive consequences from abstaining from 37% to 8%. Students who had initiated sexual activity by the end of the study had a reduction in reports of only positive consequences from abstaining from 40% to 6%. Compared to positive consequences, reports of negative consequences from refraining from sexual activity increased over time for both students who remained sexually inexperienced by the end of the study, and those who became sexually active by the end of the study (all P<.001 with Cochran’s Q test).
Students who remained sexually inexperienced throughout the study showed an increased reporting over time of “having a bad reputation” and “feeling regret” as negative consequences. Regardless of sexual experience, there was an increase in reporting of “had a partner get angry” as a consequence of refraining from sexual activity. For students who became sexually active during the study, a decline was noted in their reports of “having a good reputation” and “friends being proud” as positive consequences from refraining from sexual activity.

In a comparison between genders, female students were 4 to 5 times more likely to report positive consequences from refraining from sexual activity, and almost twice as likely to report negative consequences. For each assessment, girls were also more likely to report having experienced only positive consequences from refraining from sexual activity. In regards to sexual experience, independent of gender, students who were sexually experienced were more likely to report positive consequences from refraining from sexual activity in the fall and spring of ninth grade and the fall of tenth grade. At all assessments, sexually experienced students were more likely to report negative consequences of refraining from sexual activity. By the fall of tenth grade, sexually experienced students were 2 to 3 times more likely to report any positive consequences from refraining, and by the following spring were 5 to 7 times more likely to report any negative consequences from refraining. At the end of the study, students who remained sexually inexperienced were more likely to report only positive consequences from refraining from sexual activity.
Researchers also found that students who were sexually active at the beginning of the study were more likely to report negative consequences from refraining from sexual activity in the fall of ninth grade (1st assessment), as compared to students who became sexually active during the study. However, by the spring of the tenth grade year, sexually experienced students at the beginning of the study were twice as likely to report positive consequences from refraining from sexual activity as compared to students who became sexually active during the study. Overall, findings suggest that adolescents may choose not to abstain from sexual activity or change their mind to refrain due to an increase in negative consequences and a decrease in positive consequences as they age.

*Evaluations of the Baby Think It Over Intervention*

Baby Think It Over (BTIO) is an infant simulator that has been incorporated into health education classes across the country to offer adolescents the opportunity to experience the responsibility and impact caring for an infant carries. Due to the high cost of the infant simulators, their effectiveness in pregnancy prevention in adolescents needs to be evaluated. The purpose of this study by Somers and Fahlman (2001) was to determine the effectiveness of the BTIO infant simulator in changing teens’ attitudes towards parenting, as well as contraceptives and sexual behaviors, and to evaluate the simulator as an adequate teaching and educational tool in teen pregnancy prevention. The researchers also sought to find and develop effective instruments that can be used to evaluate the BTIO intervention. The framework for this study was the BTIO intervention program.
Two groups of students were used in the study, one control group and one experimental group. The students were selected from the suburban areas of a large midwestern city (Somers & Fahlman, 2001). Students from both the experimental and control groups were primarily Caucasian, middle class, and had a mean age of 16.2 years. The students selected for the experimental group were primarily from one high school (n=110), as well as two suburban high schools that were nearby (n=25, and n=16). These students were selected from certain classes, (i.e. child development, health) and consisted of 11 males, 133 females, and another seven students who did not indicate their gender. The mean age for the sample was 15.98, and students were equally divided amongst 10th, 11th and 12th grade.

The control group was also selected from the high school containing the highest number of students in the experimental group (n=62). These students were selected from multiple sections of a social studies class that is required for all students, and since they do not typically come in contact with the BTIO simulator, were assumed to be free of bias. The group consisted of 23 males, 36 females, and three other students who did not indicate their gender. The mean age for the group was 16.76 years, and students were equally divided amongst 11th and 12th grade, though three students failed to report a grade.

Students from both groups completed a pretest prior to the BTIO simulator intervention. During the BTIO experience, students in the experimental group took turns acting as “parents” to the infant simulator for two nights and three days (typically over a weekend). Students were not allowed to use the infant simulators
during school hours. Ten to twelve weeks after the BTIO experience, both student groups were given a post-test. Participation in the study was voluntary; both parent and student consent was obtained prior to participation. A university institutional review board approved study procedures.

The researchers created the majority of questionnaires used in this study, as there was little found to efficiently evaluate this interventional program. Surveys that were used were revised versions of surveys used by the researchers in previous data collection. Adolescent attitudes were evaluated regarding the following topics: (a) premarital sexual attitude, (b) future orientation, (c) realism about the responsibilities of child-rearing, (d) personal intentions regarding sexual intercourse and child-bearing, (e) self-efficacy to resist risky situations, and (f) perceptions of others' acceptance of teen pregnancy (Sommers & Fahlman, 2001, p. 190). The subscales had a total of 20 items that were measured using a five-point Likert type scale, ranging from “strongly agree” to “strongly disagree”, except for the questions regarding self-efficacy, which used a scale that ranged from “very sure” to “very unsure”. The Spearman-Brown Prophecy was used, and projected internal consistency, with the assumption that the total number of items in the subscales was 20. Researchers used a shortened version of the sexual behaviors portion of the Sex Knowledge and Attitudes Test for Adolescents (SKAT-A) as well. The SKAT-A had shown a previous history of high consistency, and a Cronbach’s alpha reliability coefficient of .88 on both the pretests and posttests. The subscale regarding sexual communication evaluated the students’ communication with parents, peers, and
partners about sexual intercourse and contraceptives, and produced a pretest alpha of .80 and posttest alpha of .79. The subscale regarding sexual activity (i.e., kissing, touching, oral sex and sexual intercourse) produced a pretest alpha of .86, and a posttest alpha of .88. An additional page was administered to the experimental group during the posttesting to assess their feelings regarding the BTIO experience, utilizing Likert-type questions and open-ended narratives.

Narrative data collected from the experimental group during posttest was analyzed, and the researchers identified response categories. Forty-four students reported that the BTIO intervention “made me totally afraid of having a child right now”, while most (52 students) reported, “I am a little more concerned about becoming pregnant as a teenager”. Fifty-three students reported they had previous experience caring for babies. Other questions allowed students to choose and/or report multiple answers. In an open-ended question that asked students to explain how the BTIO intervention influenced their attitudes about “becoming pregnant”, “being sexually active or abstinent”, and “using contraception”, 55 students reported that they did not want to be pregnant. Thirty-four students reported that caring for a child was difficult, and 11 said the intervention had no affect on their attitudes towards becoming pregnant. Twenty students reported that they would wait longer now to become sexually active, though 120 students did not respond to the question at all. Thirty-four students reported that they should use birth control and/or be careful to avoid pregnancy, but again, 115 students did not respond to the question. When asked what influences a teenager’s decision to have sex or remain abstinent,
50 students reported their peers, 23 reported family and friends, 15 reported fear of pregnancy and STD’s, while 58 had no response. When asked what had influenced their own personal decision to have sex or remain abstinent, 17 reported preparedness (financial and/or emotional readiness), 16 reported a relationship/wanting love, and 12 reported peers. Fifty-five students did not have a response.

This study failed to find a statistically significant effect of the BTIO intervention on one group of teenagers when compared to another group of teenagers that did not have the experience with the program or infant simulator. Most students, though, had some indication in their responses that the BTIO had some effect on them. Most frequently students reported a desire to avoid pregnancy, and that they had realized from the infant simulators that caring for a child was time consuming and a lot of responsibility, as well as keeping one from achieving future goals.

Mixed results have been found in studies concerning the effectiveness of the BTIO intervention, and the intervention comes at a high cost to schools and educational programs. The purpose of the study by Barnett and Hurst (2004) was to evaluate whether or not students that participated in the BTIO intervention did in fact take it seriously, and if the BTIO intervention helped adolescents to develop a more realistic view of parenting and its responsibilities when it was accompanied by a larger sexuality education program. The framework used for this study was the BTIO intervention program.
The study population included 8th and 10th graders from 20 schools in a rural portion of northwest Missouri. Students included in the study sample were participating in a sex education program presented by Life’s Walk. A total of 277 eighth graders (148 females & 129 males), and 102 tenth graders (71 females and 31 males) completed a questionnaire. For eighth graders the BTIO experience typically lasted 48 hours, and took place during the school week. As for the tenth graders, the BTIO experience typically lasted 72 hours, and occurred over the weekend, Friday through Monday.

A survey was created and administered to all students one month after completion of the Life’s Walk sexual education program that included the BTIO experience. The survey included items that addressed reaction to the BTIO experience, particularly on future decision-making, and were answered using a Likert-type scale that ranged from strongly agree to strongly disagree. One item was also included that addressed sexual behavior in the last month since the BTIO program. The items addressing BTIO had an alpha reliability of .78. The second source evaluated was the measured care of the BTIO infant simulator. Using the technical readout that is provided by the BTIO infant simulator, the researchers were able to measure the number of times the BTIO infant was neglected, handled roughly, and the total amount of time the BTIO infant cried. Data were collected from only 173 students due to time constraints, but no intentional or systematic bias was involved.
Seventy-three percent of the students agreed that the BTIO intervention showed them what it would be like to be a single parent, and 76% agreed that BTIO helped them to decide to wait to have children. Sixty-five percent of students agreed that BTIO made them more likely to postpone sex. The majority of students (70%) disagreed that BTIO showed them that caring for babies was fun. Responses were combined to create a total score, indicating the extent to which the students took BTIO seriously and planned to postpone pregnancy and childbearing. Females in both 8th and 10th grades were found to have a higher average score than males, and overall, 8th grade students scored higher than 10th grade students. One item in the survey did address sexual activity in the last month since the BTIO experience. Overall, 11% reported they did have sexual intercourse in the past month, with females more likely than males to have had sexual intercourse (14% vs. 7%). Tenth graders were more likely to report recent sexual intercourse than the eighth grade students (28% versus 5%). For comparison, students were asked prior to starting the program if they had ever had sexual intercourse. Forty-five percent of the 10th grade students and 12% of the 8th grade students reported having had sexual intercourse.

In regards to the BTIO output, the simulator results were consistent with survey results, implicating that students took the BTIO experience seriously. Recordings or reports of abuse or neglect of the BTIO infant simulator were rare. Comparing results between male and females, no significant difference was found regarding neglect, but a significant difference was found regarding total length of
crying time ($t (105) = 2.24, p = 0.027$). Males were more likely to let their infant simulators cry, and there was a larger variation in response times than with females ($F = 6.87, p = 0.1$). Males were also more likely to handle the infant simulators roughly ($t (82) = 3.20, p = .005$), with more variability than the females ($F = 15.09, p < .001$). Comparisons between grades showed no significant difference on neglect, though there was a significant difference between variance, as tenth graders showed more variability in their care than $8^{th}$ grade students ($F = 7.84, p = .006$). No significant difference was found in total crying time, or in variances. Eighth grade students were more likely to handle their infant simulators roughly ($t (167) = 4.48, p = .001$), and showed a high variability ($F = 9.02, p = .003$).

This study's purpose was to determine if adolescents enrolled in a sexual education program would take the BTIO experience seriously. The results from the survey and simulator readouts supported this, as students recognized the difficulty and responsibility of caring for an infant, and neglect and/or abuse of the infant simulator was rare. Females responded better to the experience than males, and a greater impact was found for $8^{th}$ grade students, as compared to $10^{th}$ grade students.

The intention for the Baby Think It Over intervention is for the participating adolescents to make safer sexual behavior decisions after discovering the life-changing consequences of unprotected sex. The purpose of this study by Didion and Gatzke (2004) was to describe and evaluate the long-term personal impact of the “In Your Care” program, using the BTIO infant simulator, on subsequent sexual health and behavior decisions, as well as to make recommendations to improve the
program. The framework used for the study was the “In Your Care” program and the Baby Think It Over intervention program.

Students from four rural, midwestern high schools where the “In Your Care” was originally implemented were invited to complete a survey. The surveys were offered to 200 11th grade students who previously participated in the “In Your Care” program as an 8th or 9th grade student. Participating students were required to return a parental permission slip. Of the 200 invited to participate, a total of 50 students from three of the schools returned completed surveys. A purposive sample of 11th grade students who had previously completed the “In Your Care” program in the 8th or 9th grade, were selected from three separate school districts to participate in six focus groups.

In an effort to assure anonymity of participating students, the survey was actually offered to all 11th grade students at the participating four high schools. The survey was similar to an original posttest that was used to evaluate the students’ reactions to and perceptions about the infant simulator immediately after the BTIO intervention took place. The survey assessed attitudes regarding teen pregnancy and distribution of risk behavior, as well as the students’ parenting experience, personal sexual activity intentions, and risk behavior inventory. The focus groups consisted of six to seven students, and were gender separated. Researchers used open-ended, global questions, and asked students their perceived benefits of the BTIO intervention, if the BTIO intervention should be continued, and how they would improve the program.
Of the surveyed students, 88% had actually participated in the “In Your Care” program. Students ranged from 16 to 17 years old. Sixty-four percent of participants were female, and none reported ever fathering a child or being pregnant. Fifty-four percent of the respondents reported having an after-school job, and almost all of them reported intentions of attending college after high school graduation.

Only student responses from those students who had participated in the “In Your Care” program were included in the survey analysis. In response to caring for a child, all students agreed that it would take most of a parent’s time to care for a child, though 67% percent of students did not feel that caring for a child was a 24-hour responsibility. Males were found to report that caring for a child required less hours in the day (M= 18.22, SD= 5.67) as compared to the female students (M= 23.32, SD= 1.74), with a significant difference in mean hours \( t(18.875) = -3.714, p = 0.001 \). Eighty percent of the students reported that marriage was very important or essential prior to having children, and most students believed that the effects of pregnancy were negative on family relationships. Seventy-four percent of students reported their family relationships would be strained if they had a child, while 8% reported that having a child would destroy their family relationships. Of the participating students, 16% actually reported that having a child would improve their family relationships, while 2% said that having a child would have no effect on their family relationships. Male students were more likely to report that having a child would improve family relationships as compared to female students \( x^2(3) = 10.67, p = 0.014 \). Ninety-eight percent of students reported that having a child
would limit their social life, while 58% believed that having a child would cause them to postpone future goals, or make them more difficult to accomplish. Only 42% of students actually reported they believed having a child would change their future plans.

Thirty percent of students reported they were sexually active, with 54% stating the risk of pregnancy would be a deterrent from becoming sexually active at this time. Forty-four percent said they had in fact postponed intercourse to avoid pregnancy. No significant difference was found between male and female students regarding perceptions of pregnancy and postponing intercourse. A significant number of students without after school jobs reported indecision about intercourse ($x^2(2) = 6.215, p = 0.045$), and the same group was more likely to postpone intercourse to avoid pregnancy as compared to students with after school jobs ($x^2(2) = 6.657, p = 0.036$). A risk assessment was also developed in order to evaluate risk taking behaviors amongst the students, such as cigarette smoking, alcohol use, physical violence, sexual risk behaviors, and driving after drinking. Half of the students admitted to taking part in a risk behavior at least once in the previous 30 days. Students who reported being sexually active were found to have a much higher mean risk score as compared to the other student groups ($F_{2,47} = 5.488, P = 0.007$).

Initial comments in the focus groups centered on the realities of parenting and caring for a child. Students commented on the endless responsibilities related to caring for a child, and the impact having sex can have on their lives. Students
commented on their feelings during the experience with caring for an infant. Some noted frustration with having to constantly meet the needs of the infant, and embarrassment when they had to be seen in public with an infant, afraid someone might think it was a real infant. Students also learned the effects that caring for an infant would have on family relationships. Some reported their parents and siblings were unwilling to “baby sit”, and unhappy they were awoken by the crying infant. Others commented on the importance of having partner support. In regards to the impact that the infant simulator had on sexual health decisions, many students admitted the experience had frightened them and they intended to be more cautious, and some noted that it made them “think twice about having sex or getting seriously involved in a relationship” (Didion & Gatzke, 2004, p. 334). In regards to program improvement, students endorsed the program, and reported a desire for the program to be continued and made mandatory for all students. Some students reported they wished for a more intense experience with the infant simulators and also expressed a need for more information regarding pregnancy prevention, contraceptives, sexually transmitted diseases, and communication in relationships.

The researchers found that students, overall, believed the consequences of teenage pregnancy and child rearing to be negative, and most reported they intended to delay pregnancy. Most of the participants indicated to researchers that the infant simulator was not adequate on its own in pregnancy prevention and improving sexual health decisions, but that it should be part of a comprehensive
approach, including education regarding contraceptives, sexually transmitted diseases, and communication.

Many studies have focused on evaluating the effectiveness of infant simulators in adolescent sex/health education and pregnancy prevention, but none have included a control group or a structured, competency-based curriculum as part of treatment. The purpose of this study by Roberts and McCowan (2004) was to evaluate the effectiveness of the Baby Think It Over simulation intervention, in conjunction with the New York state parenting curriculum, on adolescents’ attitudes towards parenting and sexual behavior. The study framework was based on the New York State Parenting curriculum and the Baby Think It Over intervention program.

The study was conducted in two suburban schools in western New York, where the population was high school students enrolled in a health/sexual education course. The study sample included a total of 236 students, with 174 in the experimental group, and 62 in the control group. Of the total 236 students, 112 were males, and 124 were females, and ages ranged from 14 to 18 years. The majority of students were in the 12th grade (48.3%), The majority of participants were Caucasian (84.3%). In regards to religious orientation, 58.9% reported Roman Catholic, 30.9% Protestant, 4.7% Jewish, and 5.5% other. The majority of mothers graduated from high school (52.5%), and 40.7% had a degree from a 2 or 4-year college.
Students completed the Infant Simulator Impact Scale (ISIS), created by authors Roberts and McCowan (2004), before and after completing the BTIO infant simulation intervention and 5 week curriculum. Included in the instrument were 38 items: 15 demographic and informational items, and 23 attitudinal items. The survey took approximately 20 minutes to complete. Students were asked how they felt about statements using a 4-point Likert-type format that ranged from strongly agree to strongly disagree. A posttest design was used to evaluate infant care, and was measured by the simulator’s computerized monitoring unit. The infant simulators randomly displayed typical infant behaviors, based on a realistic schedule of an actual infant. Students were responsible for feeding the infant with a bottle or breast-feeding device, changing diapers, and holding the infant while rocking or burping. If the infant was mishandled it began to cry and had to be comforted until the crying ceased. A computerized monitoring unit in each infant created a report of how well the infant was cared for, showing how many times the infant was neglected, roughly handled, shaken, as well as how often the infant required to be fed, burped, rocked, or changed.

The 23-attitudinal items were organized into three categorical scales: pragmatic, responsible and social. The fourth category consisted of the simulation results, including the number of times the infant was neglected, mishandled, and shaken. Chi-square analysis was performed on the posttest responses, and there was a significant difference found between the experimental and control groups on 10 attitudinal items:
1. Item 12 “Children of teenagers are not as well cared for as children of older parents” (p=.000)

2. Item 13 “I would be very upset if I became pregnant (or my girlfriend was pregnant)” (p=.001)

3. Item 14 “It is very important to be married before having children” (p=.003)

4. Item 16 “Parenting is a skill that takes time and patience to learn” (p=.000)

5. Item 18 “Birth control interferes with sexual activity” (p=.000)

6. Item 22 “I could afford to raise a baby as a teenager” (p=.001)

7. Item 24 “I could easily raise a child and continue my education” (p=.000)

8. Item 27 “My future would be better if I had a baby” (p=.000)

9. Item 28 “Being a teen parent would make me more important with my friends” (p=.003)

10. Item 30 “Teenagers should abstain from sexual behaviors” (p=.013)

(Roberts & McCowan, 2004, Results section, ¶ 4).

In regards to item 12 and 13, the students in the experimental group felt more strongly that they would be prepared to care for a child, and would be less upset about a pregnancy than the control group. Students agreed that caring for an infant took time and patience (Item 16), and tabulation of responses showed that agreement on this issue doubled after the infant simulator and curriculum. Students
in the experimental group showed a strong disagreement with item 14, which focused on the importance of marriage before having children. Students in the experimental group felt strongly that birth control interfered with sexual activity (Item 18), which may be a result of lack of focus on sexual pleasure in health education courses.

The experimental group showed a stronger disagreement with items 22 (“I could afford to raise a baby as a teenager”), and 24 (“I could easily raise a child and continue my education”) than the control group, and showed agreement with item 30 (“Teenagers should abstain from sexual behaviors”). This showed that the program positively affected students’ attitudes in regards to these areas/issues.

The experimental group students did agree with item 27 (“My future would be better if I had a baby”), though no time limitations were established in the statement, so students may have been considering future plans. The fact that the control group agreed more with item 28 (“Being a teen parent would make me more important with my friends”) significantly more than the experimental group, supported this idea.

Not only did the experimental group feel better prepared to care for infant, they recognized that caring for an infant required skill, time and patience. In fact, the number of students that agreed with that statement doubled after the infant simulator. Also, students in the experimental group, even more so than the control group, agreed that students should abstain from sexual behaviors, which showed the intervention had a positive effect on the students’ attitudes towards having and
caring for an infant. This study utilized the BTIO infant simulator and a well-structured, competency-based curriculum to improve students’ attitudes in the social, pragmatic and responsibility domains.

Summary of Literature Review

Barriers to contraceptive use.

Adolescent females face various barriers that impede appropriate and effective contraceptive use. Despite receiving education regarding contraceptives, adolescent females have shown ambivalence towards pregnancy, a belief of invulnerability to pregnancy, and forgetfulness regarding daily compliance with birth control prescriptions (Breheny & Stephens, 2004). Researchers concluded that adolescent females may not perceive themselves as child-bearers, nor may adults recognize them as sexually active (Breheny & Stephens).

Pregnancy desire, or perceptions of a significant other’s desire for pregnancy can influence a female adolescents decision to use contraceptives appropriately. In examining pregnancy desire in regards to contraceptive use, Davies et al. (2006) found previous inconsistent contraceptive use, desire to become pregnant, perception that her partner desired her to become pregnant, greater number of sexual partners, less frequent communication with her partner regarding contraceptives, and belief her partner was monogamous affected African-American female adolescents’ contraceptive use. Researchers concluded multiple variables can influence adolescent, African American females’ contraceptive use, and identifying these can aid in effective prevention efforts.
Perceptions of and desires for pregnancy.

In addressing adolescent males desires for pregnancy, Davies et al. (2004) found that young African-American men, who cared for and/or fathered a child(ren) faced a number of variables that influenced their desire for pregnancy and their perceptions of adolescent fatherhood. Those who viewed pregnancy in a positive light cited pregnancy as a way to control a female partner and desiring pregnancy due to a strong physical attraction to a female. Many reported little involvement from their fathers, and voiced misconstrued ideas of adequate fatherly involvement in a child's life. General consensus was that adolescent fathers received familial and peer support, but admitted females received little support and often made derogatory comments regarding pregnant female adolescents. In general, the young men were found to be favorable towards adolescent fatherhood, though many expressed that they were not ready to be fathers at the birth of their child. Those who denied a desire for pregnancy were unable to give clear explanation of their efforts to avoid pregnancy (Davies et al., 2004).

In assessing adolescent male’s intentions to get a female partner pregnant, despite a general desire among African-American adolescent males to avoid pregnancy, many expressed a likelihood that they would get someone pregnant in the near future (Rosengard, Phipps, Adler, & Ellen, 2005). Researchers found that this may be related to the adolescent males’ ambivalence towards pregnancy, or a lack of confidence in their ability to effectively use contraception. This may prove to
show a lack of commitment to contraceptives and/or avoiding pregnancy amongst male adolescents (Rosengard, et al.).

Female adolescents’ have various views of pregnancy, though most female adolescents who have experienced pregnancy and/or are raising a child are able to note disadvantages of early pregnancy. Perceptions of advantages and disadvantages can vary depending upon the adolescent’s culture, desire for pregnancy, and previous parenting history. Researchers concluded that female adolescents were heterogeneous in their views of pregnancy, and interventions should accommodate various perceptions (Rosengard, Pollock, Weitzen, Meers, & Phipps, 2006).

In assessing adolescent female’s desire for pregnancy, Heavey, Moysich, Hyland, Druschel and Sill (2008) found that pregnant adolescents rated their male adolescent partner’s reaction to pregnancy more positively than their own. Perceptions of their male partner’s desire for pregnancy were assessed instead of the partners’ actual desire, which researchers found may have a greater influence on females adolescent’s desire for pregnancy than their partner’s actual desire (Heavey, Moysich, Hyland, Druschel, & Sill).

Future goals, including plans for college or career goals, may impede adolescents from plans and/or intentions of early pregnancy, but this has not been found to be a significant factor in adolescent females’ sexual behaviors. Researchers found that future goals were not an independent predictor of female adolescents’ pregnancy avoidance attitudes, unless achieving their goals was explicitly correlated
with pregnancy preventions (Jumping-Eagle, Sheeder, Kelly, & Stevens-Simon, 2008).

Consequences and perceptions of abstinence.

Adolescents face various consequences in their decision to refrain or participate in sexual behaviors, and perceptions of positive and negative consequences vary depending on the adolescents’ experiences. Students who choose to remain abstinent seem to face a higher number of negative consequences, as compared to positive consequences, from remaining abstinent during their high school years (Brady & Halpern-Felsher, 2008). Overall, findings suggest that adolescents may choose not to remain abstinent or choose to participate in sexual activity due to an increase in negative consequences and decrease in positive consequences from abstinence as they age (Brady & Halpern-Felsher).

Evaluations of the Baby Think It Over intervention.

Evaluation results of the Baby Think It Over (BTIO) program vary in regards to altering adolescents’ perceptions of pregnancy and postponing their future plans for pregnancy. In using the BTIO program on its own, researchers found that students took the program seriously, reporting an understanding of the responsibilities of caring for an infant and the impact of an infant on one’s personal life (Barnett & Hurst, 2004; Somers & Fahlman, 2001). Researchers also found that there wasn’t a significant difference in students’ perceptions of pregnancy in comparing those that did experience the BTIO program to those that did not (Somers & Fahlman).
Combining the Baby Think It Over (BTIO) program with a sexual health education curriculum, researchers found that adolescents conveyed an understanding of negative consequences related to early pregnancy and the responsibilities of caring for an infant after participating in the BTIO program (Didion & Gatzke, 2004; Roberts & McCowan, 2004). In qualitative assessments of adolescents post-program, researchers found that the adolescents agreed that combining the program with a sexual health education curriculum was a more effective means of sexual health education (Didion & Gatzke).
Chapter III

Methodology

Introduction

In light of the continued concern of adolescent pregnancy and risky adolescent sexual behaviors, multiple educational methods have been implemented in schools to target this issue. Due to adolescents’ prematurity in formal operational thinking, some researchers have found that they lack the ability to identify themselves as fertile beings, and therefore are unable to grasp the risk of pregnancy and its consequences. Baby Think It Over is a program that incorporates infant simulators to give adolescents a more concrete learning experience so they may grasp the concepts and risks of adolescent pregnancy. This study is a partial replication of deAnda’s (2006) study. The purpose of this study is to examine the effectiveness of the Baby Think It Over program in influencing adolescents’ perceptions of adolescent pregnancy and related responsibilities, as well its effectiveness in delaying adolescent’s plans for future pregnancy. This chapter presents the population, sample, procedure, measurements, methodology, and design that will be utilized in this study.
Research Questions

1. Does participation in the Baby Think It Over program increase the degree to which the adolescent recognizes that:
   a. caring for a baby affects one’s academic and social life?
   b. family members are affected by an adolescent in the family having a baby?
   c. there are emotional risks for each parent in having a baby during adolescence?
   d. there are values, both cultural and family, that are related to having a baby during adolescence?

2. Does participation in the Baby Think It Over program delay/postpone adolescents’ plans for future pregnancy? (deAnda, 2006).

Population, Sample, and Setting

The study population will be seventh and eighth grade students in Durham County, North Carolina (NC). Participants will be selected from one of the four main generic middle schools in Durham, NC. By North Carolina law, schools are required to provide a comprehensive health education program to middle school students in the seventh and eighth grade (Durham North Carolina School District, 2010). This program includes a reproductive health and safety education program that promotes abstinence until marriage, and provides students with information regarding the risk and prevention of sexually transmitted diseases, effective contraception methods, and the awareness of sexual abuse. All program materials
and objectives are available at the middle schools prior to the start of the course. Parents are informed of the opportunity to review the program material prior to the beginning of the course, as well as their option to withhold consent for the course. If a written withhold for consent is not received, consent to the program is presumed.

The four middle schools are located in Durham County, and on average, have a student body of approximately 200-300 students in each of the seventh and eighth grades. All four schools have a predominately African-American student population, and more than 25% of the student body qualifies for free lunch (Public School Review, 2008).

Students will be selected from the Healthful Living course in various periods, which includes the required 6-week reproductive and sexual health education program. Both seventh and eighth grade students participate in the course each semester, so both will be included in the sample. Students are expected to range from 12 to 14 years old. Requirements for participation will include enrollment in the Healthful Living course, student consent to participate in the study, and written parental consent for both student participation in the sexual health program and in the study. Approximately 100 students will be randomly selected for the study sample from those meeting the requirements for participation. The four generic middle schools in Durham County were chosen because of their accessibility and to include a well-representative body of students. The sample is representative of the study population, as all seventh and eighth grade students in Durham County, with
parent permission, are required to complete the Healthful Living course, which includes the sexual health education program.

Protection of Human Subjects

The study, prior to implementation, will be submitted to the Ball State University Institutional Review Board and the Durham County School Board for approval. Participation will be voluntary, and participants will be informed that they may remove themselves from the study or refuse any part of the study at any time. Written consent from both the student and his or her parent(s) will be obtained prior to conducting the study, and an information packet explaining the purpose, benefits and risks of the study will be sent to parents prior to consenting. There are no identified risks from participating in the study. The benefit of this study is to assist health care professionals and educators in assessing the effectiveness of an adolescent sexual health and pregnancy prevention program in delaying adolescents’ plans for future pregnancy and increasing their awareness of the effects of early pregnancy on one’s academic, social and family life.

Procedures

After obtaining approval from the Durham County School Board and school principal, the purpose and process of the study will be reviewed with the course instructor. The Baby Think It Over experience will take place during the time of the sexual health education program. All participating students will be given the BT10-1 pretest at the beginning of the program, prior to the experience, and results will be recorded. With the assistance of the course instructor, students will take turns over
the course of the 6-week sexual health program caring for the infant simulator.

Students will be assigned a simulator for three days and two nights (over the course of a weekend) beginning on Friday afternoon, and will return the simulator on Monday morning. Data from each simulator after each experience will be downloaded and recorded. After all students have completed the experience, all students will be administered the BTIO-1 and BTIO-2 surveys to complete.

*Research Design*

The study is a quasi-experimental design. This design facilitates the examination of causality in a situation where complete control over the experimental variable is not possible (Burns & Grove, 2003, p.214). This design will allow the researcher to evaluate the participants’ responses to questions regarding adolescent pregnancy before and after participating in the Baby Think It Over educational program.

*Instrumentation, Reliability and Validity*

Baby Think It Over (BTIO)-1 and Baby Think It Over (BTIO)-2 are two surveys used to measure program objectives and additional constructs. BTIO-1 is a 25-point instrument with closed-ended questions that utilizes a four-point Likert-type scale for responses ranging from strongly agree (4) to strongly disagree (1). Items relevant to the first four research questions will be grouped accordingly and total scores will be determined by the summation of scores from each item. Two additional scores will also be calculated that pertain to items that address understanding and dealing with a crying infant, as well as overall infant care. A
Higher score indicates a higher agreement that is harmonious with the program’s objectives, as well as more accuracy in the participant’s evaluation of the statement in each point. BTIO-1 will be utilized as both a pretest and posttest in a repeated measures design. For the sake of validity, participants will be their own controls through paired-pretest and posttest comparisons. The instrument’s internal consistency was found to be $\alpha = .84$ (deAnda, 2006).

Participants will also be asked to indicate when they would “like to have children”: (a) never, (b) right now, (c) after junior high school, (d) in high school, or (e) after high school. Participants will also indicate which items they would like to accomplish prior to having a baby: (a) have a well-paying job, (b) go to college, (c) graduate from a junior college, (d) graduate from a four-year college, (e) go to a trade/technical school, (f) get married, (g) have a career, and (h) other- write in response(s) (deAnda, 2006).

BTIO-2 is a post hoc, self-report measure that evaluates whether the program changed participants’ perceptions of caring for an infant, their beliefs regarding birth control and protection, and the amount of work involved in caring for an infant, as well as when they would like to have a child(ren) in regards to age, and educational and career goals. Participants will be asked to compare their perceptions before and after the BTIO intervention using Likert-type scales for their responses (deAnda, 2006).

The BTIO intervention utilizes an infant simulator that mimics the crying of a real infant at random intervals and which can only be stopped by inserting a key.
into the simulator’s back. Participants are assigned the infant for an average length of two and a half days and are given a key that they must wear at all times. The bracelets are fashioned so that an attempt to remove them is detectable. The computer inside the simulator records data, which includes the length of time it takes to “attend” to the infant (insert the key when it cries), and any form of rough handling, such as dropping or hitting the infant. Data will be recorded and downloaded for each student experience with the infant simulator.

**Measures of Data Analysis**

Demographic data, as well as data from the infant simulators regarding neglect and/or abuse will be totaled and percentages will be calculated. Paired *t* tests will be performed on the summated scores for all Likert-type scale items, as well as the summated scores for the first four research question items, and the summated scores for dealing with a crying infant and overall infant care. Using the BTIO-1 pretest as a covariate, ANCOVAs will be performed to evaluate if there were differences in responses based on gender. Data from items regarding the last three research questions (postponing pregnancy and parenthood) will be reviewed using Chi-square analyses (deAnda, 2006).

**Summary**

This chapter has described the methods and procedures that will be conducted for this purposeful research study. The study is a quasi-experimental design that will utilize an anticipated sample size of approximately 100 students. Descriptive statistics and correlational data analysis will be used to evaluate the
effectiveness of the Baby Think It Over experience on the adolescents’ perceptions of pregnancy and their intentions of future pregnancy. The BTIO-1, BTIO-2 and the BTIO infant simulator will be used to collect data. This study will replicate a study previously conducted by deAnda (2006) with the anticipation of validating previous results while providing further insight and information that can better improve sexual health educational interventions for adolescents.
References


http://www.thenationalcampaign.org/costs/national.aspx


http://www.advocatesforyouth.org


http://www.colorado.edu/ibs/jessor/pubs.html


National Campaign to Prevent Teen Pregnancy Web site:
http://www.thenationalcampaign.org

President Obama calls for a new teen pregnancy prevention initiative:


http://www.guttmacher.org/media/nr/2010/01/26/index.html

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<td>1. Roberts &amp; McCowan (2004)</td>
<td>Recent research has focused on the effectiveness of infant simulators in adolescent sexual health education, but none have assessed the effectiveness of infant simulators along with a structured, competency-based curriculum or control groups.</td>
<td>(1) Does the use of infant simulators without additional training affect the attitudes of teenagers toward parenting and sexual behavior? (2) Does the use of infant simulators, combined with the New York State parenting curriculum, affect the attitudes of teenagers toward parenting and sexual behavior?</td>
<td>The Baby Think It Over program and the New York State parenting curriculum</td>
<td>236 male and female high school students enrolled in a health/sexual education course from two suburban schools in western New York. 174 students in the experimental group, and 62 in the control group.</td>
<td>Quantitative, Quasi-Experimental</td>
<td>The Infant Simulator Impact Scale (ISIS), which was developed by the researchers and utilized used as both a pretest and posttest. The ISIS was reviewed by college faculty and high school health educators prior to use, as well as tested with a sample of 250 students. Included in the instrument were 38 items: 15 demographic and informational items, and 23 attitudinal items. Students were asked how they felt about statements using a 4-point Likert-type format that ranged from strongly agree to strongly disagree. A posttest design was used to evaluate infant care, and was measured by the simulator's computerized monitoring unit. A computerized monitoring unit in each infant creates a report of how well the infant was cared for, showing how many times the infant was neglected, roughly handled, shaken, as well as how often the infant required to be fed, burped, rocked, or changed.</td>
<td>Use of the simulator and comprehensive curriculum showed a reinforcement in adolescents of key concepts: parenting is a skill that takes times and patience, teenagers cannot afford to raise a baby, raising a child and continuing education is difficult, and teenagers should abstain from sexual behaviors. The experimental group feel better prepared to care for infant and recognized that caring for an infant requires skill, time and patience. The number of students that agreed with that statement doubled after the infant simulator. Students in the experimental group, even more so than the control group, agreed that students should abstain from sexual behaviors, which showed the intervention had a positive effect on the students' attitudes towards having and caring for an infant.</td>
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<td>Studies have shown that adolescent females' desire for pregnancy has a correlation with their perceptions of their male partner's desire for pregnancy. Although adolescent pregnancy has often been looked at from the young female perspective, little is known about the young male perspective of pregnancy and child rearing.</td>
<td>To qualitatively examine the perceptions of young African American males toward issues of pregnancy and early child bearing.</td>
<td>Framework for this study is based on established focus-group research methodology by Kitzinger (1994, 1995), Patton (1990), Stewart &amp; Shamdasani (1990), Pope, Ziebland, &amp; Mays (2000) (as cited in Davies, et al., 2004).</td>
<td>26 male partners of adolescent females who had become pregnant while participating in a randomized controlled trial that was funded by the Institute of Mental Health. The parent study screened and identified African American sexually active adolescent females (n=522) in adolescent medicine clinics, health department clinics, and school health classes. The recruitment sites were located in lower socioeconomic neighborhoods in Birmingham that had high rates of STD's, violence, teen pregnancy, substance abuse and unemployment. Eligibility for the parent study included: African American, female, 14-18 years old, unmarried, and sexually active within the last 6 months.</td>
<td>Qualitative, Grounded Theory</td>
<td>Four focus groups were conducted over the course of two consecutive Saturdays, and each lasted approximately 90 minutes. The moderator for the focus group used a discussion guide, in order to facilitate the discussion, as the observer took note of the participants' non-verbal reactions and controlled the tape-recording equipment. A script was followed throughout the discussion to incorporate the focus-group methodology and lead the discussion. Open-ended questions were utilized to explore the intrapersonal, interpersonal, and community factors that may influence the participants' sexual behavior and childbearing.</td>
<td>Researchers found that of the total 26 young men that participated in this group, 39% admitted they desired to father a child, and most participants were generally favorable about becoming a father at an early age. Participants reported receiving family and peer support once becoming a father, and showed a strong network of support for their peers who were fathers. In contrast, participants who denied they had desired the pregnancy made no explanation of what efforts they made to avoid pregnancy. Many reported little parental involvement from their fathers, but felt that children benefited from a father's involvement. Many, though, lacked an understanding of the appropriate benefits fathers could provide. Participants displayed a general distrust and disapproval toward adolescent mothers, often implying that young women desired pregnancy in order to manipulate their male partner, and often got what they &quot;wanted&quot; and/or &quot;deserved&quot;.</td>
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<td>3. Barnett &amp; Hurst (2004)</td>
<td>Mixed results have been found in studies concerning the effectiveness of the BTIO intervention, and the intervention comes at a high cost to schools and educational programs.</td>
<td>To evaluate whether or not students that participate in the BTIO intervention do in fact take it seriously, and if the BTIO intervention helps adolescents to develop a more realistic view of parenting and its responsibilities when it is accompanied by a larger sexuality education program.</td>
<td>The BTIO intervention program 379 female and male 8th and 10th grade students from 20 schools in a rural portion of northwest Missouri. Students included in the study sample were participating in a sex education program presented by Life’s Walk.</td>
<td>Quantitative, Descriptive/Quasi-Experimental</td>
<td>1). A survey was created and administered to all students one month after completion of the Life’s Walk sexual education program that included the BTIO experience. Items addressed participants’ reactions to the BTIO experience, particularly on future decision-making, and were answered using a Likert-type scale that ranged from strongly agree to strongly disagree. One item was also included that addressed sexual behavior in the last month since the BTIO program. The 8 items had an alpha reliability of .78. 2.) Technical readouts from the BTIO simulators were assessed. Simulators measured the number of times it was neglected, handled roughly, and the number of times it cried. (Data was not collected on all students due to time constraints)</td>
<td>Seventy-three percent of the students agreed that the BTIO intervention showed them what it would be like to be a single parent, and 76% agreed that BTIO helped them to decide to wait to have children. Sixty-five percent of students agreed that BTIO made them more likely to postpone sex. The majority of students (70%) disagreed that BTIO showed them that caring for babies is fun. Responses were combined to create a total score, indicating the extent to which the students took BTIO seriously and planned to postpone pregnancy and childbearing. Females in both 8th and 10th grades were found to have a higher average score than males, and overall, 8th grade students scored higher than 10th grade students. The simulator results were consistent with survey results, implicating that students took the BTIO experience seriously. Recordings or reports of abuse or neglect of the BTIO infant simulator were rare.</td>
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<td>Helping adolescents to create and develop future, long-term goals is a significant factor in pregnancy prevention, encouraging students to postpone early pregnancy to pursue their future plans. However, studies have not shown if there is a correlation between future goals and aspirations and adolescents' sexual behavior.</td>
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<td>To determine if conventional, long-term goals, such as planning to attend college, independently affect adolescents’ sexual behaviors or if there is any relationship directed by the perception that pregnancy is an impediment on future goals.</td>
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<td>351 young women were selected from three urban adolescent health clinics in the Southwest. Eligibility required that participants were younger than 20 years of age, had had sexual intercourse, had never been pregnant, and used an unreliable form of contraceptive (i.e. rhythm, douching, or withdrawal) or no method at all, in one of the last four occurrences of heterosexual, vaginal intercourse.</td>
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<td>Quantitative, Descriptive/Correlational</td>
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<td>A self-administered questionnaire with items that were selected from a questionnaire developed for a study of adolescents’ pregnancy and child rearing attitudes. Two questions addressed participants’ future goals, and two questions addressed the participant’s perceptions of their future goals achievability. A 5-point scale (Cronbach’s alpha, 0.77) was used to assess the participants’ perceptions of how pregnancy poses a barrier to reaching future goals. Five outcome variables were utilized to measure pregnancy avoidance behaviors and attitudes, including: contraceptive use and method(s) used, intentions to avoid pregnancy, and feelings towards abortion.</td>
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<td>About half of the young women who had educational and/or vocational goals perceived pregnancy would make achieving them more difficult, and having goals was not an independent predictor of outcomes. Researchers found that despite young women reporting conventional goals and aspirations, this was not associated with pregnancy avoidance attitudes, unless goal achievement is explicitly correlated with pregnancy prevention.</td>
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| 5. Davies, DiClemente, Wingood, Person, Dix, Harrington, et al. (2006) | Pregnancy desire is one antecedent to examine, as well as other attitudes towards sexual partners and self-esteem, when examining contraceptive use. Effective pregnancy prevention programs need to build on beliefs and attitudes of adolescents. | To examine the understudied antecedent of pregnancy desire and the temporal relationship between it and use of inconsistent contraception. Recognizing decisions regarding contraceptive use take place within sociocultural sexual relationships context, additional concepts are evaluated. | Gordon’s Theory of Adolescent Decision Making (1996) | 522 female teens from multiple sites, including: two adolescent medicine clinics, four health department clinics, and health classes from five high schools. Requirements included: African-American, female, 14-18 years old, unmarried, and reporting sexual activity within the last six months. | Quantitative, Predictive Correlational | Unnamed self-administered questionnaires were utilized in closed settings, followed by private face-to-face interviews that involved closed-ended questions about potentially sensitive topics, including contraceptive use, desire for pregnancy, perception of partner’s desire for pregnancy and partner communication regarding sexual issues. Responses used a Likert-type structure. Interviews assessed 5 single items relating to sexual history. Self-esteem was measured using the Rosenberg Self-esteem scale. | Four variables were identified as independently predictive of inconsistent contraceptive use: desire to become pregnant, less frequent communication with partner, inconsistent contraceptive use at baseline, and higher number of lifetime partners. |
| 6. Somers & Fahlman (2001) | The Baby Think It Over infant simulators have been incorporated into multiple sexual health education programs for adolescents. Despite its reported high usage and high cost, previous studies regarding its effectiveness have been conflicting. | To determine the effectiveness of the BTIO infant simulator in changing teen’s attitudes towards parenting, as well as contraceptives and sexual behaviors, and to evaluate the simulator as an adequate teaching and educational tool in teen pregnancy prevention. The researchers also sought to find and develop effective instruments that can be used to evaluate the BTIO intervention. | The Baby Think It Over intervention program. An experimental group of 151 males and female adolescents selected from child development and health classes of multiple suburban high schools. A control group was selected from the high school that contained the highest number of students in the experimental group, and consisted of 62 male and female adolescents that did not have prior experience with the BTIO intervention program. | Quantitative/Qualitative, Correlational/Quasi-Experimental A 20-point questionnaire administered both as a pretest and posttest to both groups, that addressed students’ premarital sex attitudes, future orientation, realism about child rearing, intentions regarding sexual intercourse and pregnancy, ability to resist risky situations, and perceptions of others’ acceptance of teen pregnancy. The Spearman-Brown Prophecy Formula projected internal consistency. A shortened version of the Sexual behaviors section of the SKAT-A (Sex Knowledge and Attitudes Test for Adolescents) was used to assess participants’ communication with others regarding sexual topics and overt sexual behaviors/activity, and obtained a Cronbach alpha reliability coefficient of .88 on pretests and .88 on posttests. Seven items also assessed participants’ perceptions of peers sexual activity, personal sexual experience, plans for first sexual intercourse, contraceptive use, age at first sexual intercourse, total number of sexual partners, and desired age of first pregnancy. The experimental group also received an additional questionnaire posttest that utilized open-ended and Likert-type questions to assess the effects of the BTIO intervention. | No statistically significant difference was found in the pretest and posttest measures between the control and experimental groups. Responses reported in the narrative questionnaires from the experimental group, most participants indicated they were more concerned with becoming pregnant or afraid to become pregnant. The most frequently reported lessons learned from the experience was that being a parent is time-consuming and requires a lot of responsibility, and that being a teen parent will interfere with future goals. |
Due to the continued high rates of adolescent pregnancy in the United States, a variety of educational programs have focused on preventing first and subsequent pregnancies in adolescents. Understanding adolescents' attitudes towards pregnancy can help guide future adolescent pregnancy prevention efforts and educational programs.

To explore the disadvantages and advantages of teenage pregnancy perceived by pregnant adolescents to better understand adolescents' attitudes towards pregnancy.

A convenience sample of 247 pregnant female adolescents was selected from the Women’s Primary Care Center at Women and Infants’ Hospital between February 2002 and August 2004. Eligibility requirements included that the participant be 19 years or younger, female, pregnant, and presenting at the center for initial prenatal care.

Qualitative, Grounded Theory

A research nurse or trained research assistant, using a structured questionnaire, interviewed participants during their first prenatal visit at the center. Items discussed in the interview included: demographics, pregnancy intentions, feelings/reactions about their pregnancy, contraceptive use, decision-making process regarding pregnancy, support system, living situation, sexual experiences, school and extracurricular involvement, reproductive health history, substance use behaviors, and abuse history (Rosengard, et al., 2006, p. 504).

All participants were given a one page open-ended questionnaire to complete. Participants identified more disadvantages than advantages to teenage pregnancy, and disadvantages were quite often emphasized more by the sample as compared to advantages. Themes identified in regards to advantages were no advantages noted, building a family/enhancing relationships, increased benefits (i.e. grow up, take more responsibility, grow up alongside children), and practical considerations (i.e. early pregnancy would benefit them in their future plans). Themes identified in regards to disadvantages included no disadvantages noted, lack of preparedness, changes/interference (i.e. put lives on hold, revise goals), and negative views of others regarding their pregnancy. A difference of emphasis in themes was shown between age groups, ethnic groups, those that intended pregnancy, those who did not, and those that had similar reproductive and/or parenting history.
| 8. Heavey, Moysich, Hyland, Druschel, & Sill (2008) | Adolescent males have shown to influence their female counterparts on issues such as contraceptive use and pregnancy. The variable to be studied though may not be the male partner's desire for pregnancy, but the adolescent female's perception of his desire for pregnancy. | The purpose of this study is to examine the relationship between adolescent females' desire to be pregnant and their perceptions of their male partners' desire for pregnancy. | Gordon’s Theory of Adolescent Decision Making (1996) | Seventy-eight adolescent females, between the ages of 14 to 19 years old, selected from obstetric clinics located in an area known as the “crescent” of poverty within Rochester, NY. | Quantitative, Descriptive/Correlational | A 31-question survey, that included questions regarding pregnancy desire, educational level completed, student status, number of previous pregnancies, religious background, previous drug use, tobacco use, contraception use, and pattern of use, as well as clinical services required. Other information collected included current male partner's age, oldest male partner's age, number of partners, current and previous partner's desire for pregnancy, age at first intercourse, and age of partner at first intercourse. | There was a significant association found between the adolescents' feelings about pregnancy and male partners' feelings about pregnancy. Male partners were found to be more likely to find pregnancy in a positive light, as compared to the female adolescents. Female adolescents who stated that their male partner had positive feelings about their pregnancy were four times more likely to report wanting to be pregnant than or in the future in comparison to those that stated their male partner was ambivalent or unhappy towards the pregnancy. |
Previous research has shown that early initiation of sexual activity in adolescents is associated with a higher level of sexual risk taking and health related consequences, such as unintended pregnancy, sexually transmitted diseases, and having a greater number of lifetime sexual partners. Studies highlighting teenage sexual behavior have focused on adolescents’ perceived disadvantages and advantages of engaging in sexual activity, yet little research has focused on the consequences of adolescents refraining from sexual activity.

The purpose of this study was to examine the consequences of adolescents refraining from sexual activity, and whether the social and emotional consequences differed over time, by gender, and by sexual experience.


Ninth grade students were selected from two California public high schools. 4 episodes of data collection occurred. 637 students completed surveys in the first round, 575 in the second, 512 in the third, and 516 in the fourth. The mean age was 15 years. Most participants were Caucasian (40%), and over half were female (58%).

Quantitative, Descriptive/Correlational

Students were surveyed in the fall and spring of the academic years 2002-2003 and 2003-2004 using self-administered surveys. Students' sexual experiences were assessed at each point, and students were considered to be sexually experienced if they had ever engaged in vaginal and/or oral sex. At each time point, students were asked whether they had experienced consequences from refraining from sexual activity. Consequences that were addressed at all assessment points were “had a good reputation”, and “had your friends proud of you”, while “felt responsible” was assessed at only the first three time points. Negative consequences that were addressed at all assessment points were “had a partner get angry” and “had a bad reputation”. “Felt regret” and “felt left out of your group of friends” were two consequences that were not assessed until the 3rd and 4th assessment points, and “felt like you let your partner down” was only assessed at the 4th point.

Researchers found that reports of only positive consequences from refraining from sexual activity, regardless of sexual experience, declined significantly over time. Reports of negative consequences from refraining from sexual activity increased over time for both students who remained sexually inexperienced by the end of the study, and those who became sexually active by the end of the study. Girls were more likely than boys to report both positive and negative consequences of refraining from sexual activity. Participants were sexually experienced were also more likely to report any negative or positive consequences from refraining from sexual activity.
<p>| 10. Rosengard, Phipps, Adler, &amp; Ellen (2005) | Male adolescents, themselves, have shown to have differing perceptions of early pregnancy. As males adolescents have shown to have influence on their female partner’s sexual health decisions, a better understanding of male adolescents’ pregnancy desires is needed in order to aide efforts in adolescent pregnancy prevention. | To assess adolescent males’ intentions to get someone pregnant, as well as their perceived likelihood of getting someone pregnant in the near future. Also to assess the interplay between intending to get someone pregnant and the likelihood of getting someone pregnant, and its association with reported condom use and intentions to use condoms in the future. | The Theory of Planned Behavior (Ajzen, 1985). | One hundred and one males were chosen from a municipal sexually transmitted disease clinic located in northern California and met the following eligibility criteria: age between 14 to 19 years, English-speaking, vaginal or anal intercourse in the previous 3 months, and local residence within the metropolitan area. | Quantitative, Descriptive | Researchers used structured interviews conducted by a qualified research assistant, followed by a corresponding questionnaire. Interviews assessed demographics, perceived risk of sexually transmitted diseases, attitudes towards condom use, perceived social norms regarding condom use, condom self-efficacy, and intentions to use a condom. Also included in the interview were pregnancy attitudes/intention, perceived risk of pregnancy, and abortion intentions. Demographics included age, gender, racial/ethnic group, and mother’s level of education. | Participants who had indicated plans for pregnancy in the next 6 months also reported their mothers had lower levels of education, had more negative attitudes towards condoms’ effects on trust in relationships and less negative attitudes towards getting someone pregnant. This was in comparison to participants who did not indicate intentions to get someone pregnant within the next 6 months. Similarly, participants who reported a likelihood of pregnancy within the next 6 months also reported lower educational levels of their mothers than those who reported no likelihood within the next 6 months. These participants also reported “less self-efficacy to use condoms in challenging situations, less negative pregnancy attitudes, greater perceived risk of getting someone pregnant who is using birth control pills, and weaker intentions to use condoms in the future. |</p>
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<th>11. Didion &amp; Gatzke (2004)</th>
<th>Adolescents continue to participate in risky sexual behaviors. Efforts to reduce adolescent pregnancy have included infant simulators in adolescent sexual health education programs, though mixed results have been obtained in evaluating the effectiveness of infant simulators in altering adolescents’ perceptions of early pregnancy.</th>
<th>To describe and evaluate the long-term personal impact of the “In Your Care” program, using the BTIO infant simulator, on subsequent sexual health and behavior decisions, as well as to make recommendations to improve the program.</th>
<th>A purposive sample of 50 11th grade students from three separate school districts that had previously participated in the &quot;In Your Care&quot; program as an 8th or 9th grade student.</th>
<th>Quantitative/Qualitative, Descriptive</th>
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<td>The “In Your Care” program and the Baby Think It Over intervention program.</td>
<td>1.) A survey that was similar to a previous posttest given to students after their initial experience with the BTIO simulator. The survey assessed attitudes regarding teen pregnancy and distribution of risk behavior, as well as the students’ parenting experience, personal sexual activity intentions, and risk behavior inventory. 2.) The focus groups consisted of six to seven students, and were gender separated. Researchers used open-ended, global questions, and asked students their perceived benefits of the BTIO intervention, if the BTIO intervention should be continued, and how they would improve the program.</td>
<td></td>
<td>The researchers found that students, overall, believed that the consequences of teenage pregnancy and child rearing to be negative, and most reported they intended to delay pregnancy. All students agreed that it would take most of a parent’s time to care for a child. Thirty percent of students reported they were sexually active, with 54% stating the risk of pregnancy would be a deterrent from becoming sexually active at this time. Forty-four percent said they had in fact postponed intercourse to avoid pregnancy. No significant difference was found between male and female students regarding perceptions of pregnancy and postponing intercourse. Most of the participants indicated to researchers that the infant simulator was not adequate on its own in pregnancy prevention and improving sexual health decisions, but that it should be part of a comprehensive approach, including education regarding contraceptives, sexually transmitted diseases, and communication.</td>
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Despite a higher knowledge of contraceptives in adolescent women, inconsistent contraceptive use continues to result in a high number of unplanned pregnancies. Understanding barriers to effective contraceptive use in adolescent women may aid in reducing unplanned adolescent pregnancies.

To qualitatively assess barriers to contraception in adolescent females, before or since the birth of their child, and if they had used strategies to overcome these barriers.

Nine adolescent females were recruited through midwives, young mothers’ groups, notices in a community paper, and in physicians’ waiting rooms. Eligibility included age under 20 years old and having had a child within the last 18 months. All participants were 18-19 years old, and varied in age (15-19 years old) at the birth of their first child.

Interviews were conducted with each participant at their home residence, using a semi-structured approach. Participants were encouraged to speak freely about concerns or knowledge of contraceptives, which was the primary focus, and both prior and current use of contraceptives. All interviews, except one, were audio-taped and transcribed, as one participant wished not to be recorded, so written notes were taken during and after the interview. Copies of interview transcripts were given to participants for comments, though no participant made any comments or changes.

Themes for barriers to contraceptive use were indifference to becoming pregnant, feeling of invulnerability (that they wouldn’t/couldn’t get pregnant), forgetting to take/use contraceptive. Strategies to overcome barriers included adult support (encouragement from family members to see physician, take contraceptive(s)), adult responsibility (having an adult take care of setting up appointment with physician or reminding them to take pill, etc.), and using multiple contraceptive methods.

Results of the study show that adolescent females are not poorly educated regarding contraception or fertility, although the education they’ve received is not effective in ensuring consistent contraceptive use. Because of social development they may not perceive themselves as child bearers, and families may not recognize them as sexually active.