

THE EFFECT OF REQUIRING PARENTAL CONSENT FOR CONTRACEPTION ON  
ADOLESCENT PREGNANCY RATES

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## Abstract

RESEARCH PROJECT: The Effect of Requiring Parental Consent for Contraception  
on Adolescent Pregnancy Rates

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The United States has one of the highest rates of adolescent pregnancy in the world's developed nations. Arguments persist about the outcomes of requiring parental notification for minors before obtaining contraceptives. Proponents of parental consent assert that pregnancy rates may drop because adolescents would talk to their parents about sexual activity. Opponents feel that teenage pregnancy rates would increase because teens would not talk to parents and therefore not receive contraception. The purpose of this study is to examine the effect on pregnancy rates of requiring parental consent for contraception for minors. This is a modified replication of Zavodny's (2004) study with a comparative epidemiological design. The sample consists of women less than 18 years of age in one Midwestern county. A new policy will be implemented county-wide requiring parental consent before minors obtain contraception. Pregnancy rates will be followed for two years and compared to pregnancy rates for the previous two-year period. Findings of the study may add to what is known about predictors of adolescent pregnancy and may guide nurses who counsel adolescents about contraception and sexual activity.

## Chapter I

### Introduction

#### *Introduction*

The United States has one of the highest adolescent pregnancy rates in the world's developed nations. Despite widespread attention and the dedication of many public resources, health experts agree that adolescent pregnancy rates are still a major public health issue [Centers for Disease Control and Prevention (CDC), 2008]. Adolescent pregnancy can have a profound, multidimensional impact on adolescent mothers and children. The emotional health, physical health, and socioeconomic status of adolescent mothers and their children are at risk. More research is needed to test the effectiveness of preventive interventions and to comprehensively determine the factors that affect the increase and decrease of adolescent pregnancy rates.

Adolescent pregnancy rates overall and among black and Hispanic whites declined from 1990 to 2004. Pregnancy rates among 15 to 19 year olds declined 27% from 1991 to 2000, and birth rates dropped 33% between 1991 and 2003. Reductions in adolescent pregnancy rates are the results of shifts in two key underlying behaviors: sexual activity and contraceptive use (Santelli, Lindberg, Finer, & Singh, 2007). Downward trends have not been maintained, however, as birth rates for each population subgroup increased in 2006 (CDC, 2008). Adolescent pregnancy can have a marked effect on both mother and child. Adolescents tend to underestimate the negative consequences of an adolescent pregnancy. Adolescent pregnancy can result in lower educational levels and increased rates of poverty in developed countries.

Adolescent pregnancy also has emotional and psychological effects. Many adolescents do not understand the time and effort needed in order to properly care for an infant. An infant's needs dramatically affect the daily lives of the mothers and the lives of their family members and significant others (de Anda, 2006).

There have been many attempts to provide effective interventions to avoid adolescent pregnancy. Some of these interventions include school-based education, community-based education, abstinence-only education, family planning clinics, and sex education classes. Although some progress has been made, experts agree that there is still room for improvement (Santelli, Morrow, Anderson, & Lindberg, 2006). More research is needed on effective interventions across varied samples and multiple racial groups and geographic regions.

Many studies have been conducted on ways to prevent adolescent pregnancy; however, few studies have examined the effect of parental consent by minors to obtain contraception. In fact, trends in adolescent sexual intercourse have been studied more than trends in adolescents' contraception use. One study by Zavodny (2004) demonstrated how one Midwestern county reduced its pregnancy rate in women younger than 19 years of age by eliminating the requirement of parental consent in order for minors to obtain parental consent for contraceptives.

The purpose of this study was to examine the effect on pregnancy rates of requiring parental consent for contraception for minors and to partially replicate Zavodny's (2004) study. The focus was to compare pregnancy and abortion rates in two geographical areas that differ in policies regarding parental consent for contraception.

### *Background and Significance*

Adolescent pregnancy rates have declined in recent years, possibly due to shifts in underlying adolescent behaviors, including sexual activity and contraceptive use.

Adolescent pregnancy rates dropped 38% from 1990-2004 in the United States. The rate fell from its historical peak in 1990 at 116.8 per 1,000 for adolescents aged 15-19 years to 72.2 in 2004 in the same group of women (CDC, 2008). However, there has been a continual need to find new and effective ways to prevent adolescent pregnancy, as evidenced by an increase in birth rates to adolescents in 2006. Results of Zavodny's (2004) study demonstrated that imposing a parental consent requirement for contraceptives for minors would raise the frequency of pregnancies and births among young women. However, Congress and several state legislatures have considered requiring publicly funded clinics to involve parents before providing contraceptive to minors. More research is needed to address the issue of adolescent pregnancy and policies that should be imposed in order to decrease the number of adolescents who become pregnant.

*Contraception.* Contraception use is strongly associated with reduction of pregnancy risk. Trends in adolescents' contraceptive use have received less attention than trends in adolescent sexual intercourse, despite the importance of contraceptive use to prevent teenage pregnancy (Santelli et al., 2006). An increase in the use of contraceptives by sexually active high students during the 1990s was seen and may have contributed to the corresponding declines in adolescent pregnancy rates. Santelli and colleagues suggest that, to sustain this trend of increased contraceptive use, educational programs to prevent adolescent pregnancy need to include information on contraceptive

use among teenagers who do not use it and stress consistent and correct use among those who do (Santelli et al., 2006). However, an opposing public opinion has proposed that educating on contraceptive use encourages sexual activity and may increase pregnancy rates among adolescents. Federal government funding for abstinence-only education in the United States has grown rapidly since 1998. Research has been unclear about the effectiveness of abstinence-only programs, as some studies supported the effectiveness and some did not.

*Adolescents' Perceptions and Attitudes.* Many studies have been done in an attempt to understand adolescents' views on pregnancy and child birth. Most adolescents do not want to become pregnant, although some are not opposed to becoming pregnant. Other teens have undecided attitudes towards pregnancy. It has been argued that adolescents who become pregnant do not sufficiently appreciate the negative consequences and that prevention programs should target participants' attitudes toward pregnancy (de Anda, 2006). Educational programs attempt to alter adolescents' perceptions regarding pregnancy and caring for an infant in an effort to increase their intent to avoid pregnancy in adolescence. Understanding how pregnancy is conceptualized in adolescents may help strengthen the ability of health care professionals to adapt pregnancy-prevention programs and messages.

Little research has examined the extent to which parents influence the attitudes of adolescents toward pregnancy and sexual activity. Specifically, little research has explored the complex situation that results when parents and adolescents differ in their beliefs about contraceptive use.



*Interventions.* The concern over high adolescent pregnancy rates has encouraged a strong interest in the development of effective interventions. A wide variety of interventions have been implemented in an effort to decrease the rate of adolescent pregnancy.

Infant simulators have been a popular intervention that attempt to provide a realistic experience of caring for an infant. Baby-Think-It-Over has been a common simulation activity often used as a supplement in sex education programs (Barnett & Hurst, 2004). Sexual education classes have been often taught in junior high and high schools as abstinence-only education or including contraception education. In addition to school-based educational programs, some preventive programs have occurred in family planning clinics, general health clinics and general community-based programs.

There has been debate about whether sexual education programs should have an abstinence-only philosophy. Some experts have argued that recent declines in adolescent pregnancy were attributable to abstinence from sexual intercourse. However, research has shown that patterns of declining pregnancy rates have been observed in developed countries where improved contraceptive use has been the primary determinant of declining rates. Some research has suggested that intervention programs needed to encourage contraceptive use among teenagers who did not use it and stress consistency and correct use among those who did use contraception. DiCenso, Guyatt, Willan, and Griffith (2002) suggested that sex education should be more positive with less emphasis on anatomy and scare tactics. They stated that these interventions did not focus on strategies for improving the quality of sexual relationships. They concluded that

interventions to help adolescents learn about healthy sexual relationships were needed and that evaluations of these interventions into adulthood should be done.

The research conducted on primary prevention programs focused on education showed that these programs alone do not delay initiation of sexual intercourse in young women or men, improve birth control use in young women, or reduce the pregnancy rates in young women. However, Klerman (2004) also reported that few of these research studies used strong research designs.

Other interventions to supplement education have included monetary incentives for delaying pregnancy, mentoring by adults, peer mentoring, home visits by health care professionals, employment training, reinforcement by educators in the school system, and coaches to remove barriers to prevention resources. However, few significant gains in prevention have been documented with these approaches.

Programs that utilized more than one approach have been more effective. For example, a study to examine successful interventions to prevent a repeat adolescent pregnancy studied the effect of a combination of weekly group meetings on parenting, encouragement of participation in school events, individual case management through home visits, personal health care, and participation in community service projects. After 3 years, repeat pregnancies were significantly lower for program participants (6%) compared with the control group (37%) (Key, Barbosa, & Owens, 2001). Meade and Ickovics (2005) found that pregnancy prevention programs that integrated clinical and social services for adolescents had significantly lower rates of repeat pregnancy.

Some studies suggested that a close relationship between an adolescent and a helping adult was important in making choices about sexual activity. A close relationship allowed discussion about sensitive topics and the creation of life goals and dreams (Schaffer, Jost, Pederson, & Lair, 2008). Little testing has been done on relational programs intended to reduce adolescent pregnancy.

Teenage pregnancy is a complex problem with many influences. Intervention research has not yet clearly demonstrated the most effective strategies for pregnancy prevention. More research is needed to improve interventions aimed to prevent adolescent pregnancy. A particular focus for research is on use of contraception and whether or not parental consent should be required.

#### *Problem*

Adolescent pregnancy can have profound effects on the emotional, physical, social, and financial aspects of an adolescent, as well as the child. Many people argue that requiring parental consent for minors to obtain contraception may increase the pregnancy rate because teens would switch to ineffective, nonprescription forms of contraception or no use at all. Others feel that the rate would decrease because it would encourage teens to talk to their parents about sex and possibly use abstinence. More research is needed on the effect of requiring parental consent for minors to obtain contraception.

#### *Purpose*

The purpose of this study was to examine the effect on pregnancy rates of requiring parental consent for contraception for minors. This study was a partial replication of Zavodny's (2004) study.

### *Research Question*

The following research question guides this study: What is the effect of requiring parental consent for contraception for minors on adolescent pregnancy rates?

### *Conceptual Framework*

An underlying conceptual framework guided this study. Key concepts in this conceptual framework included adolescent pregnancy, pregnancy rates, abortion rates, policy regarding parental consent for minor to obtain contraception, and clinic care.

The key conceptual focus of this study was the association between parental consent for contraception and adolescent pregnancy rates. Zavodny (2004) suggested that pregnancy rates may rise if parental consent for contraception were required for contraception because some individuals, who would have used medical contraceptives, would then use less-effective means of birth control or no contraception at all, while continuing to have sex. Zavodny also suggested that abortions, birth rates, or both would rise as well. While underlying this dilemma was the core interpersonal relationship between the individual adolescent and the parent, the present study did not examine the nature of the parent-child relationship but rather surveyed trends at a system-level, specifically a system of clinics where adolescents received pregnancy prevention and pregnancy care. All the women in this study received care at family planning clinics that receive federal funds under Title X of the Public Health Service Act. Clinics funded by Title X were required to provide services without regard to age or marital status. In the context of this conceptual background, the current study proposed to examine the effect of requiring parental consent for contraception on pregnancy rates of adolescents in one Midwestern region. Associations among variables were explored.

### *Assumptions*

Assumptions underlying this study included:

1. Statistics provided by clinics and existing databases were accurate.
2. Adolescents whose data were included in the study did not receive contraception from other sources.
3. Clinics that provided the setting for the study complied with set policies.

### *Limitations*

This study examined data drawn primarily from suburban, predominately Caucasian communities, and results were not generalizable to other areas. In addition, data were drawn from one geographic region, and findings were not generalized to non-Midwestern regions.

### *Summary*

Many studies have been done to gain insight on factors that affect the rate of adolescent pregnancy. However, adolescent pregnancy rates remain a major public issue. More research is needed to investigate new methods of intervention, as well as continuing to explore the effects of a combination of interventions from abstinence only to contraceptive use. Specifically, more research is needed to determine the effect of a policy that required parental consent for contraception on adolescent pregnancy rate. This study was conducted to add to the interventional research aimed at reducing adolescent pregnancy.

## Chapter II

### Literature Review

#### *Introduction*

The United States has one of the highest adolescent pregnancy rates in the world's developed nations. Despite widespread attention and the dedication of many public resources over the past few decades, health experts have reported that adolescent pregnancy rates are still a major public health issue (CDC, 2008). Adolescent pregnancy can have a profound multidimensional impact on adolescent mothers and children. The emotional health, physical health, and socioeconomic status of adolescent mothers and their children are at risk. Attempts to provide effective interventions to prevent adolescent pregnancy have included school-based education, community-based education, abstinence-only education, family planning clinics, and sex education classes. Although some progress has been made, experts agree that there is still room for improvement. (Santelli et al., 2006). More research is needed on effective interventions across varied samples and multiple racial groups and geographic regions. Few studies have examined the effect of parental consent by minors to obtain contraception. One study by Zavodny (2004) in one Midwestern county revealed that pregnancy rates were reduced in women younger than 19 years of age when the requirement of parental consent in order for minors to obtain contraception was eliminated.

The purpose of this study was to examine the effect on pregnancy rates of requiring parental consent for contraception for minors and to partially replicate Zavodny's (2004) study. The focus was to compare pregnancy and abortion rates in two geographical areas that differed in policies regarding parental consent for contraception.

This chapter reviews key studies on several selected aspects of prevention of adolescent pregnancy. The chapter is organized into the following sections: conceptual framework for the study, adolescent pregnancy trends, adolescent perceptions and behaviors, and evaluation of pregnancy prevention programs.

### *Conceptual Framework*

This study was guided by a conceptual framework that included the concepts of adolescent pregnancy, adolescent pregnancy rates, abortion rate, parental consent policy, and clinic care. These concepts guided Zavodny's (2004) study, although Zavodny did not elucidate the underlying framework.

In this study, the concept of adolescent pregnancy was proposed to be associated with a loose collection of sub concepts, including adolescents' perceptions of childbearing, perceived pregnancy risk, adolescents' attitudes towards pregnancy, pregnancy avoidance measures, and cultural considerations. The sub concepts were not explored in this replication of Zavodny's work, but they were congruent with the way in which adolescent pregnancy was conceptualized by this researcher. In this study, an adolescent was conceptually defined as a female between the ages of 12 and 18 years.

Pregnancy and abortion rates among adolescents were concepts in this study and were considered evidence that preventive pregnancy measures were ineffective. The concept of

parental consent for adolescents to obtain contraceptives was proposed in this framework to influence pregnancy rates. A primary aim of this study was to explore whether a requirement to obtain parental consent for contraceptives increased or decreased pregnancy and abortion rates.

Mediating variables likely existed between the concepts of pregnancy and abortion rates and parental consent or contraceptives. While not explored in this study, the variables likely included the nature of the relationship between the adolescent and parent, the nature and content of communication patterns between the adolescent and parent, parental involvement in the adolescents' reproductive behaviors, and adolescent demographic variables, such as age, ethnicity, religiosity, educational achievement and social network.

The concept of clinic care was more than the setting for data collection for this study. Two clinic settings were included in this study. One setting required parental consent for contraceptives, and one setting did not. There were two clinics in each setting. It was likely that the clinic settings differed in ways other than requirement of parental consent and therefore the clinic setting and the care received there were considered part of the framework. While little detail about the actual care received in the clinics was explored in this study, the setting and the nature of the care received there could have influenced the study results and may require exploration in future replications.

### *Adolescent Pregnancy Trends*

In recent years, the United States has had the highest adolescent pregnancy rate of any of the world's developed countries. Trends in adolescents' contraceptive use have received less attention than trends in adolescent sexual intercourse, despite the importance of



contraceptive use in preventing teenage pregnancy (Santelli et al., 2006). A study by Santelli and colleagues aimed to explore pregnancy risk and contraception among sexually active high school students between 1991 and 2003 and to examine pregnancy risk by ethnicity and grade in high school. No theoretical framework was cited as a basis for the study.

The population for the study by Santelli et al. (2006) included adolescents in grades 9-12 in both private and public schools. A national probability sample was drawn from this population. For analyses, public data on contraceptive practice and sexual behavior collected through the national Youth Risk Behavior Survey (YRBS) were utilized. The YRBS used self-administered paper and pencil questionnaires in classroom settings. The sample was limited to youth who were enrolled in school and present on the day the survey was initially administered or on one of several makeup days. The pregnancy risk index was used to estimate the overall pregnancy risk. The index allowed researchers to estimate pregnancy risk resulting from contraceptive use and nonuse. The risk was calculated for each survey year by summing the product of each method-specific failure rate and the proportion of women using that method. Changes in pregnancy risk were assessed using weighted least-squares regression. The confidence intervals of the annual rates of change using a first-order Taylor series, which simplified computations by transforming difficult functions into sums of easily calculable components, were calculated. Finally, t tests were performed to test for significant differences in rates of use of contraception between 1991 and 2003. All differences reported in the text were significant at  $p < .05$ .

Between 1991 and 2003, contraceptive use improved in several ways. The proportion of sexually active female high school students reporting use of withdrawal declined (19% to

11%). Students reporting nonuse declined as well (18% to 12%). Overall use of hormonal methods had little change over this period. The risk of pregnancy was 27.9 pregnancies per 100 sexually active women in 1991 and 22.1 per 100 in 2003. The pregnancy risk declined 21% between 1991 and 2003. The reported differences in the study were significant at the  $p < .05$  level. Men were more likely to report condom use and less likely to report their partners' use of hormonal methods. Trends for men were similar to those among women. Increase in condom use among men increased (55% to 69%). There was reported decline in the use of withdrawal (15% to 7%) and no method (14% to 9%). Whites were the most likely to use the pill. Blacks had the highest rate of condoms use, specifically 64% compared to 57% for whites and 52% for Hispanics. Hispanics were the most likely not to use a method, specifically 21% compared to 9% of whites and 12% of blacks. The pregnancy risk fell for each group (25% for whites, 23% for blacks, and 19% for Hispanics). The differences were significant at the  $p < .05$  level. Contraceptive use at last intercourse showed differences by grade in high school. In 2003, 67% of ninth and tenth graders used condoms, compared with 56% of 11<sup>th</sup> graders and 49% of twelfth graders. In 1991 and 2003, the pregnancy risk was highest for ninth graders, although their pregnancy risk score fell by 28% (Santelli et al., 2006).

Between 1991 and 2003, the risk of pregnancy among sexually active high school women in the United States declined by 21%, primarily due to increased use of condoms and decreased use of both withdrawal and no method at all. Risk of pregnancy was highest among Hispanics. Condoms were the most important contraceptive method among teenagers. The condom was the method that teenagers most commonly used at first

intercourse. The data from this study demonstrated that the declining risk of pregnancy among high school students cannot be explained by increases in use of any single contraceptive method. It was the result of a complex set of changes in the use methods. The data demonstrated that the nation had made progress toward improving contraceptive practice but also suggested that there was room for improvement. Researchers suggested that programs to prevent pregnancy among sexually active teenagers encourage contraceptive use and consistency (Santelli et al., 2006).

In exploring a different aspect of the issue of adolescent pregnancy, Zavodny (2004) explored whether or not parental consent should be required in order for minors to receive contraceptives. No theoretical framework was cited as a basis for the study.

Proponents of parental notification have argued that requiring consent would lower pregnancy rates by encouraging teens to talk with their parents about sex and possibly use abstinence. Opponents of this requirement have argued that rates would increase because minors would switch to less effective, nonprescription contraceptives or not use any. In April 1998, an Illinois clinic provided the environment for an evidence-based answer to fertility effects of a parental consent policy for minors. The clinic began requiring parental consent before providing minors with contraceptives (Zavodny, 2004).

The sample included women younger than 19 years of age in McHenry County, Illinois. The women lived in predominately suburban, white communities. The percentage of births to women aged younger than 19 in 1997-1998 and 1999-2000 was the focus of the study (Zavodny, 2004).

A new policy requiring parental consent for minors to receive prescription birth control was implemented at the McHenry County clinic. Pregnancy rates 2 years before the new policy were compared to pregnancy rates after the new policy. The comparative groups consisted of the baseline 1997 McHenry County birth rate and the two years following, as well as comparison with nearby counties in the years after the implementation of parental consent. The analysis used a difference-in-differences technique to examine the effect of parental consent on birth rates and abortions. The minors that lived in McHenry County were compared to older women who lived in the same county. In addition, the birth rate and abortion rate of women below the age of 19 in McHenry County was compared to the corresponding changes in the neighboring counties. The statistical significance of the differences was calculated using standard *t* tests on the standard errors of the differences (Zavodny, 2004).

Results indicated that the percentage of births to women fewer than nineteen years of age rose by .52 percentage points in McHenry County between 1997-1998 and 1999-2000 following the policy change in 1997. The percentage of births to women under the age of 19 years declined by .16 percentage points in the comparison counties, giving a relative increase of .69 percentage points in McHenry County. The difference-in-differences results were statistically significant with a *p* value below .05. The relative decline in abortions to young women in McHenry County was 2.92% but was not significant at the conventional levels (*p* = .17) (Zavodny, 2004). The researcher recommended that policy makers attend to the evidence and closely monitor any unintended consequences of parental consent laws for prescription birth control services (Zavodny, 2004).

In a third study that examined trends in variables related to adolescent pregnancy rates, Santelli et al. (2007) proposed to study selected factors in declining pregnancy rates in the United States. The researchers noted that federal government funding for abstinence-only education in the United States had grown rapidly since 1998, despite a lack of scientific evidence in support of these programs and concern about their informational content and ethical acceptability. Specifically, Santelli et al. (2007) aimed to explore the relative contributions of declining sexual activity and improved contraceptive use to the recent decline in adolescent pregnancy rates in the United States. No theoretical framework was cited as a basis for the study.

The sample included young women who were aged 15-19 years at the time they were interviewed. Young women (n=1396) were interviewed in 1995, and 1150 were interviewed in 2002 (Santelli et al., 2007).

Data from 1995 and 2002 for women 15 to 19 years of age were used to develop two indexes: the contraceptive index and the overall pregnancy risk index. The measures included sexual activity and contraceptive use, contraceptive failure rates, risk indices, and data on pregnancies (Santelli et al., 2007).

The results showed the contraceptive risk index declined 34% overall and 46% among adolescents aged 15 to 17 years. Improvements in contraceptive use included increases in the use of condoms, birth control pills, withdrawal, and multiple methods and a decline in nonuse. The overall pregnancy risk index declined 38%, with 86% of the decline attributable to improved contraception use (Santelli et al., 2007). The authors of the study concluded that the decline in the United States adolescent pregnancy rates appeared to be

following the patterns observed in other developed countries, where improved contraceptive use had been the primary determinant of declining rates (Santelli et al., 2007).

### *Adolescent Pregnancy Perceptions and Attitudes*

A collection of research studies have attempted to gain insight into adolescents' perceptions of pregnancy, which has been proposed to be a factor in the incidence of adolescent pregnancy. Perceptions of teenage childbearing among pregnant adolescents may be viewed as having advantages and disadvantages. Gaining an understanding of these perceptions could be useful in designing and implementing teen pregnancy prevention programs. A study by Rosengard, Pollock, Weitzen, Meers, and Phipps (2006) aimed to enhance understanding of pregnant adolescents' conceptions of the advantages and disadvantages of teen pregnancy and childbearing. No theoretical framework was cited as a basis for the study.

The sample for this study included 247 pregnant adolescents recruited during their first prenatal health care visit to a women's primary care clinic in Providence, Rhode Island. Participants responded in writing to open-ended questions, expressing their ideas about what was advantageous and disadvantageous about having an infant during their teen years rather than waiting until they were older. Themes and patterns in responding were coded, and subgroup differences based on age, ethnicity, intendedness of current pregnancy, and pregnancy/parenting history were assessed (Rosengard et al., 2006).

The results of the study showed that themes related to advantages of teen pregnancy included enhancing connections, positive changes/benefits, and practical considerations. Themes related to disadvantages included lack of preparedness, changes/interferences, and others' perceptions (Rosengard et al., 2006).

The authors did note that pregnant adolescents were not a homogenous group. They proposed that considering differences in how pregnancy and childbearing were conceptualized along developmental, cultural, attitudinal, and experiential lines could strengthen nurses' abilities to tailor pregnancy-prevention messages (Rosengard et al., 2006).

In a second study about adolescents' perceptions related to pregnancy, Jumping-Eagle, Sheeder, Kelly, and Stevens-Simon (2006) examined the extent to which teens' conventional goals, such as planning to go to college, were independently related to pregnancy avoidance attitudes and behaviors among teenage women. Jumping-Eagle and colleagues also queried the extent to which conventional goals were independently related to pregnancy avoidance attitudes and behaviors among teenage women or if any relationship was mediated by the belief that pregnancy would be an impediment to achieving such goals. Fostering conventional goals was a key component of pregnancy prevention for teenagers. There has not been any research to show whether or not having life goals independently influences sexual behavior, or whether the perception that pregnancy represents an impediment to achieving goals mediates any association between fostering conventional goals and pregnancy prevention.

A convenience sample (n=351) consisted of racially mixed women who were younger than 20 years old, had never been pregnant, had participated in sexual intercourse, had used no contraceptive method, or used an unreliable method in at least one of the last four episodes of heterosexual intercourse. The study took place at three urban adolescent health clinics in the Southwestern United States. No theoretical framework was cited as a basis for the study (Jumping-Eagle et al., 2006).

Data were collected from a self-administered questionnaire that was developed for a study of adolescents' childbearing attitudes (Stevens-Simon, Sheeder, & Harter, 2005a; Stevens-Simon, Sheeder, & Harter, 2005b). The instrument measured goals status, pregnancy avoidance measures, and social and demographic characteristics. In addition, a five-item scale (Cronbach's alpha = .77) was used in the study to quantify the perception that teenage pregnancy poses an impediment to achieving goals. Chi-square, regression and two-by-two analyses of variance assessed associations between life goals and perceptions of early childbearing and pregnancy avoidance measures (Jumping-Eagle et al., 2006).

The results showed that three-fourths of participants had educational or vocational goals. Eight in ten perceived their goals to be achievable, but fewer than half thought pregnancy would be an impediment to achieving these goals. Teens who had goals were more likely than others to have used a contraceptive at last intercourse (OR = 2.2,  $p < .01$ ). Females who considered pregnancy an impediment to goal attainment were more likely to have conventional goals than were those who did not share this perception, with adjustment made for educational status, (81% vs. 69%,  $p < .05$ ; OR = 1.8) (Jumping-Eagle et al., 2006).

Conventional goals seemed to motivate teenagers to avoid pregnancy only if they believed pregnancy to be an impediment to their life goals. The researchers proposed that it may be less important to encourage young women to formulate goals than to ensure that they consider adolescent pregnancy a threat to their plans (Jumping-Eagle et al., 2006).

In a third study aimed at understanding the perceptions and attitudes of adolescents toward pregnancy, Bruckner, Martin, and Bearman (2004) addressed questions about whether or not pregnant adolescents appreciated the negative consequences of teen



pregnancy. This article aimed to determine whether 15-19 year old females' attitudes toward pregnancy influenced their contraceptive consistency and their risk of pregnancy.

The sample included 4,877 adolescent females who were unmarried and who fully completed two in-home interviews from the National Longitudinal Study of Adolescent Health (Add Health). No theoretical framework was cited as a basis for the study (Bruckner et al., 2004).

Data from the first two waves of the National Longitudinal study of Adolescent Health were used to determine whether females' attitudes toward pregnancy influenced their contraceptive consistency and their risk of pregnancy. Characteristics and attitudes associated with pregnancy and contraceptive use were assessed using bivariate and multivariate analysis. No reliability or validity of the instrumentation was reported (Bruckner et al., 2004).

Less than one fourth (22%) of female adolescents were considered to have anti-pregnancy attitudes, 8% as having pro-pregnancy attitudes, and 14% as being ambivalent about pregnancy. Among sexually experienced respondents, those who were pro-pregnancy had the highest rate of previous pregnancy. A curvilinear relationship between cognitive ability and likelihood of consistent and inconsistent contraceptive use as found. Having a positive attitude toward contraception was associated with increased likelihood of inconsistent and consistent contraceptive use compared with nonuse (OR = 1.6,  $p < .05$ ; OR 2.1,  $p < .01$ ) (Bruckner et al., 2004).

Researchers concluded that pregnancy prevention programs should emphasize positive attitudes toward contraception. Findings suggested that effective contraceptive use

was shaped by positive attitudes and was strongly associated with reduction of pregnancy risk (Bruckner et al., 2004).

In 2003, almost half of high school-age teenagers in the United States were sexually experienced (Manlove, Ryan, & Franzetta, 2004). Despite occasional dramatic declines, the United States teenage pregnancy rates and birthrates have tended to run much higher than those of other industrialized countries, and most teenage pregnancies have been reported as unintended. A fourth study overviewed in this section aimed to promote the understanding of the factors associated with contraceptive use in teenagers. In this study, most recent relationships were assessed to help identify strategies to prevent unintended pregnancy.

The sample included 1,468 adolescents drawn from 5,023 unmarried, sexually experienced adolescents who participated in two waves from the National Longitudinal Study of Adolescent Health and had valid sample weights and partner-specific information about sexual relationships. The sample consisted of teenagers with more than one lifetime sexual partners (Manlove et al., 2004).

Odds ratios were generated through logistic regression to assess factors associated with patterns of contraceptive in teenagers' most recent sexual relationships. Many relationship and partner characteristics were significant among females but not males. Females' odds of ever, rather than never, having used contraception in their most recent relationship were slightly elevated but not significantly across the duration of the relationship. The odds were reduced if females' most recent partner had been a stranger to them ( $p < .01$ ). The odds of consistent use were higher for females in a "liked" relationship than for those in a romantic relationship (OR = 2.6,  $p < .01$ ). For teenagers in romantic or

“liked” relationships, the odds of ever-use and of consistent use were elevated among females who had discussed contraception with partner before their first sex together (OR = 2.9,  $p < .01$ ; OR = 2.1,  $p < .01$ , respectively). The researchers concluded that teenagers needed to use contraception consistently over time and with all relationships and learn to negotiate sexual and contraceptive decisions in each relationship (Manlove et al., 2004).

### *Evaluation of Adolescent Pregnancy Prevention Programs*

School nurses face the complex task of dealing with the complicated issue of teenage pregnancy. Hulton (2007) recognized that school nurses must focus on ways to reduce the number of pregnancies. School nurses need to systematically evaluate the quality and effectiveness of preventive practice. The purpose of this article was to describe a logic model framework and how it could be used by school nurses in the development, implementation, and evaluation of a school-based teenage pregnancy program in a rural community. No specific theoretical framework guided the study.

Sixty-two high school students in a rural community received a 10-session, abstinence-based, character-building curriculum. Twenty-two of the students were male, while forty were female. The mean age was 15.6 years. 71% were Caucasian and 22% were African American (Hulton, 2007).

AFL (Adolescent Family Life) Core Instrument was used to derive specific survey scales. Variables that were measured included future orientation, importance of abstinence until marriage, sexual attitudes about future, and self-efficacy for sexual abstinence. The outcome measures were mapped to the logic model with attention to issues of validity and reliability (Hulton, 2007).

Between the intervention and comparison groups, there were no significant differences in the outcomes of future orientation, importance of abstinence until marriage, sexual attitudes about future, or self-efficacy of sexual abstinence. Statistically significant results were attained in only three of the four indicators with the female participants and none with the males. However, the results of the focus groups confirmed the participants had a positive view of the “Vision of You “program. Short-term progress was encouraging (Hulton, 2007).

The researcher suggested that school nurses use a logic model framework to develop baseline data, move toward a better outcomes, and monitor program management. A component to successful prevention programs was the use of multifaceted and developmentally appropriate programs to reinforce prevention efforts throughout the teen years. School nurses working with adolescent programs that targeted teen pregnancy prevention should not adopt simplistic solutions to this complex problem (Hulton, 2007).

In yet another evaluation of an intervention to reduce adolescent pregnancy, Out and Lafreniere (2004) proposed to evaluate the effectiveness of Baby Think It Over (BTIO). There have been arguments that many of the current programs aimed at preventing teen pregnancy might be largely ineffective because they failed to take into consideration the developmental characteristics of adolescent thinking. Out and Lafreniere examined an intervention aimed at encouraging the adolescent to acknowledge his or her own personal risk for involvement in an unplanned pregnancy, as well as prompting him or her to consider the types of commitments involved in adolescent parenting. The findings of this study were from the perspective of the Health Belief Model (Herold, 1983).

The intervention group for the study consisted of students enrolled in parenting classes at two high schools. The comparison group consisted of students enrolled in physical education or geography classes at the same two schools. Eleventh grade students (n=114) (24 males, 90 females) with an age range of 14-19 years were selected. The intervention group contained 53 students and the comparison group had 61. The intervention group were assigned specific dates, ranging from a minimum of 2 days and 2 nights to a maximum of 3 days and 3 nights, during which time they assumed responsibility for the care of a simulated infant (Out & Lafreniere, 2004).

Students completed pre and post test measures assessing attitudes, behaviors, and knowledge relating to contraception and fertility. The measure was composed of 35 items, grouped to form 6 subscales: susceptibility to pregnancy/venereal disease, serious affective consequences of pregnancy, serious resolution consequences of pregnancy, benefits of effective birth control use, interpersonal benefits of birth control use, and barriers to birth control use. Attitudes toward abstinence and toward the use of contraception were assessed using a measure created by Saltz and Cabral (1994). Sexual experience and use of contraceptives were assessed using the Sexual/Contraceptive Behaviors Questionnaire (Johnson & Green, 1993). Reliabilities were calculated for all scales and subscales. Cronbach's alpha was found to range between .60 and .82. No information on validity was reported. Repeated-measures multivariate analyses of variance (MANOVA) were performed to determine if differences existed between the intervention and comparison groups on any of the dependent measures across both sessions 1 (pretest) and session 2 (posttest). A second repeated-measures MANOVA was performed on the two subscales assessing attitudes

toward both abstinence and the use of contraception. Pearson's correlation coefficients were calculated for each pair of dependant measures (Out & Lafreniere, 2004).

Adolescents in the intervention group were more likely to accurately assess their personal risk for an unplanned pregnancy than were those in the comparison group ( $p < .001$ ). Approximately 41.2% of the sample reported being sexually active. Of those, 83% experienced first intercourse before the age of 16 years. Of those who were sexually active, 19% reported using contraception less than half the time. Susceptibility was found to be positively correlated with attitudes toward abstinence in both sessions ( $r = .42, p < .001$ ;  $r = .25, p < .01$ ). In both sessions 1 and 2, a significant negative association was found between the perceived benefits of contraceptive use and attitudes toward abstinence ( $r = -.41, p < .011$ ;  $r = -.32, p < .001$ ). In session 1, a significant positive relationship was found between perceptions of the severity of resolution consequences of an unplanned teen pregnancy and attitudes toward abstinence ( $r = .42, p < .001$ ). For both sessions, a negative association was observed between perceptions of the presence of barriers to effective contraceptive use and attitudes toward abstinence ( $r = -.45, p < .001$ ;  $r = -.31, p < .001$ ) (Out & Lafreniere, 2004).

Results included a chi-square analyses that revealed no significant differences between groups for three of the categories: educational consequences, economic consequences, and social consequences. However, in session 2, adolescents in the intervention group produced significantly more examples of child-rearing consequences that did those in the comparison group. In session 1, 17% of the intervention group and 13.1% of the comparison group listed at least one example of child-rearing activity that would occur as a result of teen pregnancy (Out & Lafreniere, 2004).

The hypothesis that adolescents in the intervention group would report feeling more personally susceptible to an unplanned pregnancy than would those in the comparison group was supported. The adolescents in the intervention group were more likely to accurately assess their personal risk for an unplanned pregnancy than those in the comparison group. They were also more likely to acknowledge that failure to use contraceptives during intercourse significantly increased a personal risk for having an unplanned pregnancy. The study did have limitations. Conclusions regarding BTIO's effectiveness at preventing teen pregnancy were limited to attitudinal findings. The findings could not be readily generalized to adolescent males because they only made up less than a quarter of the sample. BTIO should be used in conjunction with other lessons to personalize the consequences of an unplanned pregnancy (Out & Lafreniere, 2001).

Another study was conducted on the Baby Think It Over infant simulation as an intervention to prevent adolescent pregnancy. de Anda (2006) aimed to alter adolescents' perceptions of the effort involved in caring for a baby and successfully increase teens' intention to avoid pregnancy by using tangible consequences of pregnancy-the Baby Think It Over (BTIO) simulation doll.

As pregnancy rates have been slowly declining among African American and white adolescents, the highest pregnancy rate among the total adolescent population has been reported among Latinos. Latino adolescents have represented a population at high pregnancy risk, which potentially has had an impact on the social, education, emotional, and career opportunities (de Anda, 2006).

de Anda (2006) selected a convenience sample of 353 Latino students, who were predominately ninth grade students from a Los Angeles County, California high school. The participating high school was in one of the ten poorest cities in the nation. Both males (n=140) and females (n=204) participated. Nine students did not report their gender.

Study instrumentation, specifically BTIO-1, measured the four main program objectives using a 25-item, closed-ended instrument with a four-point Likert-type scale. The four objectives were that caring for a baby affects an adolescent's academic and social life, that other family members were affected by having an adolescent with a baby in the family, that there were emotional risks for each parent in having a baby during adolescence, and that there were family and cultural values related to having a baby during adolescence. Total score and scores for each of the four objectives were created by summing the scores of the relevant items. BTIO-2 was a post hoc, self-report portion of the instrumentation that indicated whether the experience changed what participants thought it would be like to have a baby; when they thought they would like to have a baby in terms of age and educational and career achievements; beliefs regarding the use of birth control or protection; and how much time and work were involved in taking care of a baby. Perceptions were reported on a pre-test and post-test before and after carrying the BTIO doll. Specifically, perceptions were indicated along Likert-type scales for use of birth control, amount of effort involved in caring for a baby, and the interference of infant care-giving with education goals, career goals, and social life (de Anda, 2006).

Paired t tests were performed on the summated scores for the total number of items on the Likert-type scale, the summated score of each of the four objectives, and the scores for



crying and overall care. ANCOVAs, using the pretest as the covariate, were also conducted to determine whether there were differences in responses based on gender. Chi-square analyses were performed on the nominal data for three objectives on postponing pregnancy and parenthood (de Anda, 2006).

The gains on items on objective 1 were found to be statistically significantly from the pretest to posttest. Objective 1 related to a greater recognition of the impact of caring for a baby on academic and social life ( $p < .001$ ). The gain from pretest to posttest on objective 2 was statistically significant ( $p < .001$ ), which meant a greater recognition of the effect of adolescent parenthood on other family members. Results showed a statistically significant increase in the recognition of emotional risks on objective 3 accompanying adolescent parenthood (14.50-15.46,  $p < .001$ ). Results further showed only 1.4 percent increases in the number of those intending to wait until after graduating from high school to have children on objective 4. Students reported that carrying the BTIO doll delayed the age at which they desired to have a child, from a mean of 23 to 25 years. A dramatic drop occurred in those indicating an age of 24 years or less (67 percent to 32.3 percent). More than three-quarters of the BTIO-2 respondents indicated that they wanted to complete college and have a job or career before becoming parents. More than half answered affirmatively that BTIO changed their perceptions of what having a baby would be like. About 58.3 percent reported that BTIO helped change their minds about using birth control or protection to prevent unwanted pregnancies. Reported use of birth control or protection increased from 22.2 percent to 28.7 percent (de Anda, 2006).

The Baby Think It Over program appeared to be a well-designed intervention supported by school faculty and administration. The program appeared to be successful in changing the perceptions and intentions of participants. However, the author suggested that a comprehensive program that included BTIO and methods of birth control and abstinence might provide adolescents with the knowledge and skills they needed to avoid an unplanned pregnancy (de Anda, 2006).

In another study of the effectiveness of the BTIO (Baby Think It Over) interventions on teenagers, Somers and Fahlman (2001) aimed to determine if BTIO changed teens' attitudes toward parenting, as well as actual sexual and contraceptive behaviors linked to avoiding teen pregnancy. No theoretical framework was cited.

The sample included 213 high school students from suburban areas of a large Midwestern city. Adolescents' attitudes about premarital sexual attitudes, future orientation, realism about the responsibilities in child rearing, personal intentions regarding sexual intercourse and childbearing, self-efficacy to resist risky situations, and perceptions of others acceptance of teen pregnancy were of interest in this study. A total of twenty items for the subscales combined were rated on a five point scale ranging from one ("strongly disagree") to five ("strongly agree") except self-efficacy scores were rated on a five-point scale from one ("very sure") to five ("very unsure"). A shortened version of the sexual behaviors section of the Sex, Knowledge and Attitudes Test for Adolescents (SKAT-A) (Johnson, 1998) was used. Students indicated their frequency of engagement in ten sexual behaviors on a five-point scale ranging from one ("never") to five ("daily"). Narrative posttests were also used. The students took turns as "parents" for a period of two nights and three days.

They were solely responsible for care of their babies. Experimental and control groups completed posttests ten to twelve weeks later after all students finished using their dolls. A quasi-experimental design using multivariate analysis of covariance (MANCOVA) was used. Two separate MANCOVA procedures, both using group (experimental vs. control) as the independent variable, were conducted (Somers & Fahlman, 2001).

Results indicated that no significant change from pretest to posttest in attitudes and behaviors related to sexual behavior, contraception, and pregnancy was detected. Replication of the study was recommended (Somers & Fahlman, 2001).

In a synthesized report of the effectiveness of multiple pregnancy prevention programs, DiCenso et al. (2002) provided a systematic review of randomized control trials of pregnancy prevention programs. The authors noted that the adolescent period was a time of profound changes accompanied by increased interest in sex. This interest placed young people at risk of unintended pregnancy, with consequences that presented difficulties for the individual, family, and community.

Included in the systematic review were published and unpublished randomized controlled trials that evaluated pregnancy prevention programs, including sex education classes, school based clinics, family planning clinics, and community based programs. Samples in all studies were adolescents (aged 11 to 18 years) in North America, Australia, New Zealand, or Europe (Dicenso et al., 2002).

The methodological quality of the studies was assessed using a modified version of the rating tool developed by Jadad, Moore, Carroll, Jenkinson, Reynolds, and Gavaghan (1996). The studies were rated according to appropriateness of randomization, extent of bias

in data collection, proportion of study participants followed to last point of follow up, and similarity of attrition rates in the comparison groups (Dicenso et al., 2002).

The results of thirteen studies that included 9642 women revealed three key findings. First, primary prevention strategies, such as school based education, family planning clinics, and community based programs, did not delay the initiation of sexual intercourse in young women (pooled OR = 1.12; OR ranged from .96 to 1.30 in the studies) or young men (pooled OR = .99; OR ranged from .84 to 1.16). Secondly, the systematic review showed that intervention programs did not improve use of birth control by young women at every intercourse (pooled OR = .95; OR ranged from .69 to 1.30) or at last intercourse (pooled OR = 1.25; OR ranged from .99 to 1.59). Thirdly, intervention programs did not reduce pregnancy rates in young women (pooled OR = 1.04; OR ranged from .78 to 1.40). There was no significant heterogeneity among the studies (Dicenso et al., 2002).

### *Summary*

Many studies have been done on adolescent pregnancy and the interventions implemented to reduce an adolescent's risk of pregnancy. Data have demonstrated progress toward improving contraceptive practice and reducing pregnancy among teenagers. However, there is, to a large extent, room for improvement, as gains have been hard to sustain (CDC, 2008). Nurses need to investigate new interventions as well as continuing to explore the effects of a combination of interventions from abstinence only to contraceptive use. The literature review has suggested that nurse educators find new and creative ways to personalize both the short-term and long-term effects of an unplanned adolescent pregnancy.

The review of literature suggested specifically that more research is needed on the complex interactions between parental consent for contraceptives and adolescent decisions and behaviors related to sexual activity and pregnancy. Findings from this proposed study added to what is already known about predictors and interventions of adolescent pregnancy, particularly related to parental consent. The knowledge gained from the study can guide those who counsel adolescents in preventing future adolescent pregnancies. It can also assist policy makers in bridging the gap between education and policies to prevent adolescent pregnancies.

Literature Review Table

Source	Problem	Purpose	Frame- work	Sample	Design	Instrument	Results/Implications
Santelli, Morrow, Anderson, & Lindberg (2006)	In recent years, the United States has had the highest rate of teen pregnancy of any of the world's developed nations. More knowledge is needed about adolescents at risk and programs that reduce risk	To explore changes in pregnancy risk among sexually active high school students between 1991 and 2003 and to examine changes in pregnancy by grade in high school and race of ethnicity.	Pregnancy risk, adolescents	Convenience sample of adolescents in grades 9-12 in both private and public schools.	Descriptive	Data from the national Youth Risk Behavior Survey (YRBS) were used. The pregnancy risk index was used to estimate the overall pregnancy risk. The index was calculated for each survey year by summing the product of each method-specific failure rate and the proportion of women using that method. No reliability of validity on measures was offered.	Between 1991-2001, contraceptive use improved and the risk of pregnancy among sexually active high school women in the U.S. declined by 21%. Programs to prevent pregnancy need to encourage contraceptive use among teenagers who do not use it and stress consistency with those who do.
Rosengard, Pollock, Weitzen, Meers, & Phipps (2006).	Perceptions of teenage childbearing may be viewed as having advantages and disadvantages. Little is known about how adolescents view pregnancy	To gain understanding of pregnant adolescents' conceptions of the advantages and disadvantages of teen pregnancy and childbearing .	Perceptions, adolescents, adolescent pregnancy	Convenience sample of 247 pregnant adolescents were recruited during their first prenatal visit to a women's primary care clinic in Providence, Rhode Island.	Descriptive Design	Participants responded in writing to open-ended questions assessing their ideas about what was advantageous and disadvantageous about having an infant during their teen years rather than waiting until they were older. No reliability or validity information was offered	Themes related to advantages of teen pregnancy included enhancing connections, positive changes/benefits, and practical considerations. Themes related to disadvantages included lack of preparedness, changes/interference, and others' perceptions. Considering differences in how pregnancy and childbearing are conceptualized along developmental, cultural, attitudinal, and experiential lines will strengthen our ability to tailor pregnancy-prevention messages.

Zavodny (2004)	Proponents of parental notification say requiring parental consent for contraceptions among teenagers would lower pregnancy rates by encouraging teens to talk with their parents about sex and possibly use abstinence. Opponents of such requirements argue that teen pregnancy rates would increase because minors would switch to less effective, nonprescription contraceptives or not use any. More research is needed to define the actual effect of policies regarding parental consent.	What are the fertility effects of a policy for parental consent before providing minors with contraceptives.	Parental consent, contraception, adolescent pregnancy	Convenience sample of women younger than 19 years of age in McHenry county, Illinois. The women lived in predominantly suburban, white communities. A comparative, convenience sample of women older than 19 years was used.	Descriptive/Comparative Design	A new policy requiring parental consent for minor to receive prescription birth control was implemented. Pregnancy rates 2 years before the new policy were compared to pregnancy rates after the new policy in McHenry county. The comparative groups consisted of the baseline 1997 McHenry County birth rate and the two years following as well as comparison to nearby counties in the years after the implementation of parental consent.	Results indicated that, in the 2-year period before the new policy was put into effect, 2.92% of all births in McHenry county were to women younger than 19 years. In the 2 years after the new policy the rate rose to 3.44%. Abortion rates were not significantly affected. Policy makers need to attend to the evidence and the unintended consequences of parental consent laws for prescription birth control services.
Out & Lafreniere (2001)	Despite recent efforts aimed at preventing teen pregnancy, the U.S. continues to have one of the highest rates of any Western industrialized nation. More research is needed on programs that reduce teen	To examine an intervention aimed at encouraging the adolescent to acknowledge his or her own personal risk for involvement in an unplanned pregnancy, as well as	Health Belief Model  Personal risk of unplanned pregnancy  Adolescent parenting  Attitudes and behaviors	Convenience sample of 114 eleventh-grade students (24 males, 90 females) with an age range of 14 to 19 years.	Quasi-Experimental Design	Students completed pre- and posttest measures assessing attitudes, behaviors, and knowledge related to contraception and fertility. They were divided into intervention and comparison groups. The	Adolescents in the intervention group were more likely to accurately assess their personal risk for an unplanned pregnancy than were those in the comparison

	pregnancy	prompting him or her to consider the types of commitments involved in adolescent parenting.				intervention group used the Baby-Think-It-Over (BTIO) simulation. An instrument was composed of 35 items, grouped to form 6 subscales: susceptibility to pregnancy/venereal disease, serious affective consequences of pregnancy, serious resolution consequences of pregnancy, benefits of effective birth control use, interpersonal benefits of birth control use, and barriers to birth control. Reliabilities were adequate for all scales and subscales.	n group ( $p < .001$ ). However, the effectiveness of BTIO appeared limited. Using BTIO in conjunction with other lessons could help to personalize both the short-term and long-term consequences of an unplanned teen pregnancy.
de Anda (2006)	As pregnancy rates are slowly declining among African American adolescents and White adolescents, the Latino adolescents have the highest pregnancy rate among the total adolescent population. Latino adolescents represent a population at high pregnancy risk which impacts the social, educational, emotional, and	To alter adolescents' perception of the effort involved in caring for a baby and successfully increase their intent to avoid pregnancy by using a tangible consequence of pregnancy- the Baby Think It Over (BTIO) simulation doll	Adolescents' perceptions  Adolescent pregnancy simulation	A convenience sample of 353 Latino students, predominantly ninth-grade students from a Los Angeles County high school: 140 males participants and 204 female participants, nine did not report their gender.	Quasi-Experimental Design	BTIO-1(pretest and posttest),BTIO-2: post hoc. BTIO-1 measured four main program objectives using a 25 item closed ended instrument with a four-point Likert-type scale. BTIO-2 is a self-report measure. Youths were asked to indicate when they would "like to have children". Items related to the students' academic and social life were summed separately. Perceptions before and after	Statistically significant differences between pre and post test ( $p < .001$ .) Noted that the BTIO help them learn how hard taking care of a baby actually was and that they did not want a child at this time (39.9%).



	career opportunities. More research is needed on the perceptions and risk factors of Latino adolescents.					carrying the BTIO doll were indicated along Likert-type scales for use of birth control, amount of effort involved in caring for a baby, and the interference of infant care giving with education goals, career goals, and social life.	
Somers & Fahlman (2001)	In an effort to reduce adolescent pregnancies, studies need to be conducted to determine the effectiveness of the BTIO interventions on teenagers.	To determine if BTIO changed teens' attitudes toward parenting, as well as actual sexual and contraceptive behaviors linked to avoiding teen pregnancy.	Attitudes of adolescents, parenting, contraception, pregnancy avoidance	Convenience sample of 213 high school students from suburban areas of a large Midwestern city.	Quasi-Experimental Design	SKAT-A (Sex Knowledge and Attitudes Test for Adolescents) (Johnson, 1998) used. No reliability or validity cited. Narrative posttest.	No significant change from pretest to posttest in attitudes and behaviors related to sexual behavior, contraception, and pregnancy was detected.
Bruckner, Martin, & Bearman (2004)	Adolescents who become pregnant may not sufficiently appreciate the negative consequences of pregnancy. Prevention programs should target participants' attitudes towards pregnancy. More information on the attitudes of adolescents to pregnancy is needed.	To determine whether 15-19 year old females' attitudes toward pregnancy influence their contraceptive consistency and their risk of pregnancy.	Attitudes of adolescents, pregnancy, contraception	Convenience sample of 4,877 adolescent females who were unmarried and fully completed two in-home interviews from the National Longitudinal Study of Adolescent Health (Add Health).	Descriptive Study	Data from the first two waves of the National Longitudinal Study of Adolescent Health were used to determine whether the females' attitudes toward pregnancy influenced their contraceptive consistency and their risk of pregnancy. Characteristics and attitudes associated with pregnancy and contraceptive use were assessed using	22% of female adolescents were considered to have anti pregnancy attitudes, 8% as having pro pregnancy attitudes, and 14% as being ambivalent about pregnancy. Among sexually experienced respondents, those

						<p>bivariate and multivariate analysis. No reliability or validity on study instruments was reported.</p>	<p>who were pro pregnancy had the highest rate of previous pregnancy. A curvilinear relationship between cognitive ability and likelihood of consistent and inconsistent contraceptive use was found. Having a positive attitude toward contraception was associated with increased likelihood of inconsistent and contraceptive use compared with nonuse.</p>
Hulton (2007)	<p>School nurses need to systematically evaluate the quality and effectiveness of the practice in reducing adolescent pregnancy through program implementation and evaluation.</p>	<p>To describe a logic model and framework and how it can be used by school nurses in the development, implementation, and evaluation of a school based teenage pregnancy prevention program</p>	<p>Logic Model  School nurses Pregnancy prevention programs, program evaluation</p>	<p>Convenience sample of 62 high school students. 22 were male, 40 were female. Mean age was 15.6. 71% were Caucasian and 22 % were African American.</p>	<p>Descriptive Study</p>	<p>AFL(Adolescent Family Life) Core Instrument, focus groups, paper/pencil survey, program logs of participant variables that were measured included future orientation, importance of abstinence until marriage, sexual attitudes about future, and self-efficacy of sexual</p>	<p>School nurses can use a Logic Model framework to develop baseline data, move towards better outcomes, and monitor program management.</p>

		based in a rural community.				abstinence.	
Manlove, Ryan, & Franzetta (2004)	In 2003 almost half of high school-age teenagers were sexually experienced. Despite recent dramatic declines, the U.S. teenage pregnancy rates and birthrates are much higher than those of other industrialized countries, and most teenage pregnancies are unintended. More research is needed on perceptions of recent personal relationships and contraceptive use.	To promote the understanding of the factors associated with contraceptive use in teenagers; most recent relationships can help identify strategies to prevent unintended pregnancy.	Recent personal relationships, Contraceptive use, Unintended pregnancy, adolescents	Convenience sample of 1,468 adolescents drawn from 5,023 unmarried, sexually experienced adolescents who participated in two survey waves from the National Longitudinal Study of Adolescent Health and had valid sample weights and partner-specific information about sexual relationships. The sample consisted of teenagers with multiple lifetime partners.	Descriptive Study	Data were collected through the National Longitudinal Study of Adolescent Health Survey. No reliability and validity information was included. Odd ratios were generated through logistic regression to assess factors associated with contraceptive use patterns in teenagers' most recent sexual relationships.	Many relationship and partner characteristics were significantly related to pregnancy attitudes for females but not significantly for males. Females' odds of ever, rather than never, having used contraception in their most recent relationship increased with the duration of the relationship (odds ratio 1.1). Their odds were reduced if they had not known their partner before dating him (.2). The odds of consistent use were higher for females in a "liked" relationship than for those in a romantic relationship (2.6). Teenagers

							in romantic or "liked" relationships the odds of ever-use and of consistent use were elevated among females who had discussed contraception with the partner before their first sex together (2.9 and 2.1).
Jumpin g-Eagle, Sheeder, Kelly, & Stevens-Simon (2008)	Fostering conventional goals is a key component of pregnancy prevention for teenagers. There has not been any research to show whether or not having goals independently influences sexual behavior, or whether the perception that pregnancy represents an impediment to achieving goals mediates any association.	To determine if conventional goals, such as planning to go to college, are independently related to pregnancy avoidance attitudes and behaviors among teenage women, or if any relationship is mediated by the belief that pregnancy would be an impediment to achieving such goals.	Life goals, Pregnancy avoidance, attitudes and behaviors, adolescents	A convenience sample was obtained. 351 racially mixed women who were eligible were younger than 20, had never been pregnant, had sexual intercourse, and had used no contraceptive method or an unreliable method in at least one of the last four episodes of heterosexual intercourse. The study took place at three urban adolescent health clinics in the Southwest.	Descriptive/Comparative	The items in the analysis were selected from a self-administered questionnaire that was developed for a study of adolescents' childbearing attitudes. A five-item scale (Cronbach's alpha, .77) was used to quantify the perception that teenage pregnancy poses an impediment to achieving goals. The instruments were used to measure goals status, pregnancy avoidance measures, and social and demographic characteristics. Chi-square, regression and two-by-two table analyses assessed associations between goals and perceptions	Three-fourths of participants had educational or vocational goals. Eight in 10 perceived their goals to be achievable, but few than half thought pregnancy would be an impediment to achieving these goals. Teens who had goals were more likely than others to have used a contraceptive at last intercourse (odds ratio, 1.9). Considering

						of early childbearing and pregnancy avoidance measures.	pregnancy an impediment was associated with an increased likelihood of supporting each pregnancy avoidance measure (2.1-9.6). Conventional goals seem to motivate teenagers to avoid getting pregnant only if they believe pregnancy to be an impediment.
DiCenso, Guyatt, Willan, & Griffith (2002)	The adolescent period is a time of profound changes accompanied by increased interest in sex. This interest places young people at risk of unintended pregnancy, with consequences that present difficulties for the individual, family, and community. More analysis of existing research is needed to determine that is effective in reducing adolescent pregnancies	To provide a systematic review of studies on reduction of adolescent pregnancy	Adolescent pregnancy  Pregnancy prevention	Published and unpublished randomized controlled trials of adolescents (aged 11 to 18 years) that evaluated pregnancy prevention programs including sex education classes, school based clinics, family planning clinics, and community based programs. All studies took place in North America, Australia,	Systematic review – no research design.	The methodological quality of the studies was assessed using a modified version of the rating tool developed by Jadad et al. The studies were rated according to appropriateness of randomization, extent of bias in data collection, proportion of study participants followed to last point of follow up, and similarity of attrition rates in the comparison groups.	Primary prevention strategies do not delay the initiation of sexual intercourse in young women (pooled odds ratio 1.12; 95% confidence interval .96 to 1.30) or young men (.99;.84 to 1.16);did not improve use of birth control by young women at every intercourse (.95;.69 to 1.30) or at last

				New Zealand, or Europe.			intercourse (1.25;.99 to 1.59); and did not reduce pregnancy rates in young women (1.04;.78 to 1.40).
Santelli, Morrow, Anderson, and Lindberg (2006)	In recent years, the United States has had the highest rate of adolescent pregnancy of any of the world's developed nations. Federal government funding for abstinence only education in the United States has grown rapidly since 1998, despite a lack of scientific evidence in support of these programs and concern about their informational content and ethical acceptability.	To explore the relative contributions of declining sexual activity and improved contraceptive use to the recent decline in adolescent pregnancy rates in United States.	Adolescent pregnancy, contraceptive use, sexual activity, adolescents	Young women who were aged 15-19 years at the time they were interviewed. 1,396 young were interviewed in 1995 and 1150 in 2002 in a convenience sampling plan.	Descriptive/Comparative	Data from 1995 and 2002 for women 15 to 19 years of age were used to develop two indexes: the contraceptive index and the overall pregnancy risk index. No reliability or validity was reported.	The contraceptive risk index declined 34% overall and 46% among adolescents aged 15 to 17 years. Improvements in contraceptive use included increases in the use of condoms, birth control pills, withdrawal, and multiple methods and a decline in nonuse. The overall pregnancy risk index declined 38% with 86% of the decline attributable to improve contraception use.

## Chapter III

### Methodology

#### *Introduction*

The United States has one of the highest adolescent pregnancy rates in the world's developed nations. Despite widespread attention and the dedication of many public resources over the past few decades, health experts agree that pregnancy rates are still a major public health issue (CDC, 2008). Adolescent pregnancy can have profound effects on the emotional, physical, social, and financial aspects of an adolescent as well as the child. Many experts have argued that requiring parental consent for minors would actually increase the pregnancy rate because teens would switch to ineffective, nonprescription forms of contraception or no use at all. Others have argued that the rate would decrease because it would encourage teens to talk to their parents about sex and possibly use abstinence. The purpose of this study was to examine the effect on pregnancy rates of requiring parental consent for contraception for minors. This study was a partial replication of Zavodny's (2004) study. This chapter includes the research question that guides the study, protection of human subjects, research design, procedures, and proposed methods of measurement and data analysis.

*Research Question*

1. What is the effect of requiring parental consent for contraception for minors on adolescent pregnancy rates?

*Population, Sample, and Setting*

The population for this study consisted of women between the ages of 12 and 18 years in one Midwestern state. Most communities in which the target population lived were suburban and Caucasian.

The primary sample consisted of females under the age of 19 years who lived in McHenry County, Illinois, where a change in policy about parental consent for services was effected in Title X-funded clinics. There were no other inclusion or exclusion criteria for the primary sample.

A comparative sample consisted of females under the age of 19 years who lived in three counties near McHenry County, where changes in policy about parental consent for services were not proposed in Title X-funded clinics. There were no other inclusion or exclusion criteria for the comparative sample.

A secondary sample consisted of women over the age of 19 years living in McHenry County and the three near-by counties during the time period in which the study was conducted. There were no other inclusion or exclusion criteria for the secondary sample.



### *Protection of Human Subjects*

Approval from Ball State University Institutional Review Board was obtained before beginning the study. Pregnancy data were obtained from the National Center for Health Statistics, and abortion data were obtained from the State of Illinois Department of Public Health. Since this study was an epidemiological comparative design that only observed de-identified adolescent pregnancy rate, birth rate, and abortion rate data, no informed consents and no HIPPA consents were needed. All data were anonymous, as the clients in this study were not identified in any manner.

No risks to human subjects were identified in the study. The benefits of the study included adding to what was already known about predictors of adolescent pregnancy that could guide nurses who counseled adolescents about contraception and sexual activity. Only data from sources such as those used in this study were capable of informing nurses and adding to the knowledge base needed to counsel adolescents. Thus, analysis of these data was necessary.

### *Procedures*

The study took place over the course of two years. Natality data from the National Center for Health Statistics and abortion data from the State of Illinois Department of Public Health were used to examine the effect of the parental consent requirement in McHenry County. Baseline data on number of pregnancies and deliveries and abortions was retrieved from the year prior to the change in policy in which parental consent became a requirement. Two years later, data were retrieved for the two years following the change in policy. Data were retrieved from McHenry County, which experienced the change in policy, and from three surrounding counties that did not experience a change in

policy. The analysis compared McHenry County with three counties that were large enough to have abortion data available and that were near McHenry County. The three counties were DuPage, Kane, and Lake Counties.

The same data was also retrieved for women over the age of 19 living in these four counties during these same time periods. These women constituted the secondary sample.

There was no attempt to limit participants to only having one set of data in the study. Thus, it was possible that individual women could have had more than one set of data in the study over the three-year period.

The data were stored in a computerized database and accessed only by the researcher and the statistician. At the end of the study, the copy of the data retrieved for this study was destroyed.

### *Research Design*

The research design of this study was an epidemiological comparative design, which was a modified replication of Zavodny's (2004) study. The study observed adolescent pregnancy rates over a two-year period after implementing a policy requiring the parental consent for contraceptives for minors. The data from the county in which the change of policy occurred were compared to three other counties that did not require parental consent. These data were also compared to data from women over the age of 19 years in these counties during the time the study was conducted.

### *Methods of Measurement and Data Analysis*

The study used pregnancy and birth data from The National Center for Health Statistics and abortion data from the Illinois Department of Public Health in order to

examine the effect of parental consent on adolescent pregnancy rates. The birth rates from the four years 2008-2011 were analyzed. The birth rates were observed for a year prior to the change in policy and for a two-year period following the new policy on parental consent for minors to obtain contraception. The abortion rate was also followed. The study observed the number of births among women under 19 years of age as a percentage of all births in McHenry County and in three nearby comparison counties during 2008-2011. The parental consent for minors was imposed in May, 2009, in McHenry County in Title X-funded clinics. The study also examined abortion rates among the primary, comparative and secondary samples for McHenry County and the nearby comparison counties.

The study used a difference-in-differences technique to determine the effect of parental consent for minors on the adolescent birth rate and abortion rate. This technique was used to compare the change in pregnancy, birth and abortion rates for the primary sample, comparative sample, and secondary sample. The period 2008-2009 was the “before” period, and 2010-2011 was the “after” period. The first difference in this analysis was the change in the proportion of pregnancies, births and abortions to young women before and after the parental consent went into effect. This difference was then compared with the corresponding change in other counties and other age groups. The statistical significance of the differences was calculated using standard *t* tests on the standard errors of the differences. Findings of this study were compared with the results of Zavodny’s (2004) study through inspection and interpretation.

*Summary*

Through an epidemiological comparative design, this study proposed to explore the effect of requiring parental consent for contraception for minors on adolescent pregnancy rates. Data on pregnancy, delivery and abortion rates were collected from existing, de-identified databases for a target county in one Midwestern state and three comparative counties. Data were examined for differences over four years, spanning the time of a change in parental consent policy in the target county. Human rights were not at risk in this study. Findings were compared to Zavodny's (2004) study through inspection and interpretation. The results add to what is known about prevention of adolescent pregnancy, a crucial public health issue in the United States.

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