ABSTRACT

ADOLESCENT PREGNANCY: FACTORS AND PREVENTION

By

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In the United States the high rate of adolescent pregnancy is a cause for a concern. Previous research indicates that infants born to adolescent parents have negative social outcomes and are prone to repeat the cycle. For this reason, it is necessary and important to lower the adolescent pregnancy rates. The study examines factors that influence adolescent pregnancy and respondents' age when the first child was born (i.e., teenage pregnancy), consumption of alcohol, and sexually transmitted disease (STD) testing. The 2005 California Health Interview Survey (CHIS) adult data set was used for the analysis; the sample used included only women less than 20 years of age at the time of interview (N = 390). There were no statistically significant findings, probably due to the small sample size.

ADOLESCENT PREGNANCY: FACTORS AND PREVENTION

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LIST OF ABBREVIATIONS

AFSI	Age of First Sexual Intercourse
CDC	Centers for Disease Control and Prevention
CDPH	California Department of Public Health
CHIS	California Health Interview Survey
DHCS	Department of Health Care Services
ED	Emergency Department
ER	Emergency Room
HIV	Human Immunodeficiency Virus
IUD	Intrauterine Device
LBW	Low Birth Weight
NSFG	National Survey of Family Growth
PPACA	Patient Protection and Affordable Care Act
SPSS	Statistical Package Social Science
STD	Sexually Transmitted Disease
STI	Sexually Transmitted Infection
UCLA	University of California, Los Angeles
YRBS	Youth Risk Behavior Survey

CHAPTER 1

INTRODUCTION

Statement of the Problem

In the United States, there were 333,771 recorded live births in the year 2011, to mothers between the ages of 10-19 years of age (Xie, Harville, & Madkour, 2014). Though there has been a decline in the past years, adolescent pregnancy still poses a concern across the nation. The United States has a high rate of adolescent pregnancy, in comparison to other industrialized countries (Burr, Roberts, & Bucci, 2013).

According to the University of Maryland Medical Center the definition of adolescent pregnancy is "pregnancy in girls age 19 or younger" (University of Maryland Medical Center, 2014, "Definition").

Pregnancy among teenagers has dire concerns, and influences the young parents, the infant born to the young parents, and society (Paranjothy, Broughton, Adappa, & Fone, 2009). Infants born to adolescent parents are more vulnerable to dropping out of school, have minimal education, are reliant on public insurance, get into the

foster system, are at risk of being neglected or abused, and repeat the cycle of becoming a teen parent themselves (Burr et al., 2013).

Purpose of the Study

A survey conducted by the National Survey of Family Growth (NSFG) between 2006-2010 revealed that less than one-third of females aged 15-19 years steadily used contraceptives when sexually active. This is a huge factor that aids in the growing teenage pregnancy rate (Breuner et al., 2014).

The purpose of this paper is to examine factors that affect adolescent pregnancy, and reflect on initiatives to prevent adolescent pregnancy.

Significance of the Study

Teen pregnancy is a growing concern for health care professionals, and a practical way to prevent this would be through education in schools, health care clinics, and community based organizations. The government has supported legislative initiatives in educating the youth on pregnancy, which helps put the problem into perspective (Montgomery, Folken, & Seitz, 2014).

Literature Review

Infants born to adolescent mothers can experience negative outcomes, such as: (1) short gestation period,

(2) preterm deliveries, (3) low birth-weight (LBW), (4) stillbirth, and (5) infant mortality, which put both the mother and infant's health at risk. These factors should be explored accordingly, in order to decrease the current rate of adolescent pregnancies in the United States (Xie et al., 2014).

In addition to the above-mentioned, adolescent pregnancies are huge contributors to the increase in health care spending in the United States. Teen pregnancies and teen births accounted for nearly $9.1 billion of the total annual health care expenditure in the country (Burr et al., 2013).

Trends in Adolescent Childbearing Trends

A study conducted in 2012 suggests approximately 88% of infants born to females between the ages of 15 and 17 were unplanned (Breuner et al., 2014).

It is important to keep in mind that birth rates recorded are not the same as pregnancy rates recorded. Birth rates are the number of live births per 1,000 individuals belonging to a pre-defined age group, whereas pregnancy rates are inclusive of live births, abortions, and fetal loss per 1,000 of a pre-determined age group. The recorded abortion rate for the year 2008, among 15-19 year old females, was 14.3 per 1,000, and constituted of

16.2% of all abortions performed that year (Breuner et al., 2014).

Sexual Activity Among Adolescents in the United States

Most adolescents who have had sex earlier than what is considered "normal" tend to have a sexual partner. This could be someone who is an acquaintance or a friend and does not pursue a relationship where they are committed.

In 2011, it was reported by the Youth Risk Behavior Survey (YRBS) that 18% of adolescents below the age of 15 were sexually active, which caused over 16,000 pregnancies that year (Breuner et al., 2014).

The survey also reports that nearly 30% of adolescents aged between 15 and 17 have had sex, which caused 252,000 pregnancies. In total, the survey concluded that approximately 50% of male and female adolescents in high school have had at least one instance of sexual intercourse (Finer & Philbin, 2013).

Research also suggests that nearly 30% of ninth grade girls are reported to be sexually active. This early commencement of sexual intercourse is a high risk factor for pregnancy, sexually transmitted diseases (STDs), sexually transmitted infections (STIs), physical and emotional stress.

According to the NSFG adolescent females usually have sexual partners who are 1 to 3 years senior to them, if not older (Office of Adolescent Health, 2011). This age gap leads to situations such as rape/molestation, risk of unintended pregnancy, and negative health outcomes such as STDs and STIs (Finer & Zolna, 2011). Health care professionals can educate adolescents on the consequences of pregnancy and also provide information on contraceptives (Finer & Philbin, 2013).

These negative outcomes affect the young individuals, their families, and society in general—which calls to attention for a deeper understanding of the situation (Wisnieski, Sieving, & Garwick, 2013).

Peer Influence

Peers play an important role in an adolescent's life, and teens tend to suffer from identity crisis and sometimes cannot relate to their family; hence they look to their peers for support (Wisnieski et al., 2013).

A peer's influence on the romantic and sexual decisions made by teens, and cognitive thinking is highly sensitive during the adolescent years. If cognitive thinking is not highly developed, this could be directly proportional to poor decision-making and long-term consequences (Wisnieski et al., 2013).

In early adolescence (11-14 years), abstract thinking is not very developed, which limits the ability to assess long-term effects of a decision. Middle adolescent teenagers (15-17 years), are capable of thinking in an abstract manner, but could fall back on spontaneous behavior when stressed. Late adolescents (18-20 years) are more mature and are competent in thinking abstractly and making practical decisions to anticipate the future consequences of actions (Wisnieski et al., 2013).

If adolescent youth are sexually active before their cognitive thinking is completely functional and developed, there is a higher risk for consequences such as pregnancies, STDs, and STIs. A peer's influence during the adolescent stages is highly influential in making real life decisions, one of which is sexual behavior (Wisnieski et al., 2013).

Age at First Sexual Intercourse

There is strong research that indicates that the lower the age of first sexual intercourse (AFSI) the higher the risk of pregnancy. This can be attributed to two main causes: (1) lower ASFI extends the period over which an adolescent can get pregnant, and (2) lower ASFI increases factors such as sexual behavior, sexual partners, unprotected sex, and irregular contraceptive use increases

(Pires, Araújo-Pedrosa, Pereira, & Canavarro, 2014). Several researchers have reached a mutual agreement that initiatives to prevent early AFSI would delay adolescent sexual intercourse, and thus pregnancies (Pires et al., 2014).

Maternal Education

One of the major differences between non-pregnant teenagers and teenage mothers is the lack of education. This could be attributed as a domain in pregnancies among the adolescent. It also puts into perspective whether education and academics have a direct relation to birth outcomes (Xie et al., 2014).

In adult mothers, studies indicate that education has a direct correlation to birth outcomes. If the mother has been poorly educated, there has been an increase in low birth weights, pre-term births, and stillbirths among infants, as well as a lower rate of gestation and infant mortality (Morgen, Bjørk, Andersen, Mortensen, & Andersen, 2008). This could also mean that juveniles who are given proper education are more conscious of the potential consequences of adolescent sexual intercourse and pregnancy.

The Healthy People 2020 initiative aims to improve the educational attainment in adolescents. Performance in

academics and education has found to be a positive influence in making life decisions among young adolescents. Low academic performance also has negative side effects, which include early sexual behavior. Therefore, it can be hypothesized that educational attainment has a direct relation in birth outcomes through personal choice in sexual behavior (Office of Adolescent Health, 2014).

Unfortunately, there has not been enough literature reviewed or researched to clarify whether performance in education and academics can affect birth outcomes among teenage mothers (Xie et al., 2014).

Insurance Coverage

Though the United States currently has a high rate of pregnancy among adolescents and is a topic of debate, the insurance status of teenage pregnancy is clearly not defined. Studies suggest that there is a direct relation between insurance coverage and a decrease in pregnancy rates.

Pre-teen and teen pregnancies are mostly unintentional, and have become a national health priority to prevent such pregnancies. With the implementation of the Patient Protection and Affordable Care Act (PPACA), contraception such as condoms and birth control are freely

available, which has been influential in reducing adolescent pregnancy (Miller Graefe, & De Jong, 2013).

Nearly one fifth (approximately 20%) of the female adolescent United States population will become pregnant before they reach the age of 20 (Miller et al., 2013). This foreseen outcome puts into perspective how critical the situation really is, in comparison to other industrialized nations, where the rate of adolescent pregnancy is significantly lower (Miller et al., 2013). In Europe and Canada, access to health care is far better, which could explain the lower rate of adolescent pregnancies (Miller et al., 2013). Due to the alarming statistics, this has now become a national health priority. Communities and societies are huge factors in influencing adolescent pregnancies (Miller et al., 2013).

The socioeconomic status and poverty level is one of the main domains in directly influencing teenage pregnancy. Lack of sex education, health care, and peer influence are important factors as well (Miller et al., 2013).

Adolescent Pregnancy and Abuse History

Physical abuse, which can also translate to rape/molestation, is also a huge factor as a cause of adolescent pregnancy. History of sexual abuse causes physical, emotional, and mental damage to young females,

one of which is unintended pregnancy (Madigan, Wade, Tarabulsy, Jenkins, & Shouldice, 2014).

Unfortunately, some of these cases go undocumented, where the abuse is not reported. Initiatives are being put forward to offer counseling and protection for these young women, to avoid any further damage (Madigan et al., 2014).

Contraceptive Use and Efficacy Among Adolescents

In a report conducted by the NSFG in the year 2010, it was reported that 80% of adolescent female and 85% of male adolescents aged between 15-19 years used some form of contraception during their first sexual encounter (Winner et al., 2012).

Contraceptives are a key factor in the prevention of unplanned pregnancies. A survey conducted in 2012 concluded that short acting contraceptives such as pills, patch, or rings had a success rate of 95.5 for every 100 participants; in comparison, long acting contraceptives such as the implant or intrauterine device (IUD) had a success rate of 99.73 per 100 participants (Winner et al., 2012).

Condoms still remain the most popular method of contraception to use among adolescents, according to research done by both the NSFG and YRBS. Over 61% of sexually active adolescents reported condom use, during

their last sexual encounter. A NSFG 2010 report detailed contraceptive use, where 32% of 15-19 year old females used oral contraceptives pills (morning after pill, birth control), 9% used hormonal contraceptives (implants, rings), 51% used condoms, and 8% used other methods (spermicide, IUD; Pazol et al., 2011).

There are a variety of reasons as to why teenagers do not use contraception during sex, which include: some of them are naïve to believe they will not get pregnant (31%), some partners are not willing to use contraceptives (24%), and some of them are not concerned about becoming pregnant (22%). All of these factors have a huge implication to pediatricians, regarding the provision of anticipatory guidance and health education to adolescents in their social practices. Initiatives and consequences on proper use of contraceptives must be put forward (Pazol et al., 2011).

Conclusion

The United States has over one million reported cases of adolescent pregnancies annually, of which four fifths of them are unintentional (Goyal et al., 2013). This can be attributed to the lack of access to proper health care.

Early sexual intercourse among the adolescent population is a known cause for adolescent pregnancy, along

with STDs and STIs (Wisnieski et al., 2013).

Pregnant adolescent females have a high usage of the Emergency Room (ER), 15% of the total ER visits annually. The Emergency Department (ED) tends to neglect and exclude pregnancy evaluation of adolescent females of childbearing age, which leads to further complications (Goyal et al., 2013).

Adolescents display late detection during their first trimester, and preliminary screening using current testing patterns and early detection could help decrease adverse events associated with pregnancy, which is beneficial to both the mother and baby (Wisnieski et al., 2013).

Though there has been much research on the diagnosis of adolescent pregnancies being overlooked in an ER evaluation, not much research has been put forth on how to prevent this from occurring (Goyal et al., 2013).

Unfortunately, most research on determinants of birth outcomes has focused on adult rather than teen mothers (Xie et al., 2014).

CHAPTER 2

METHODOLOGY

Overview

The overall purpose of this study was to outline the main factors that are associated with adolescent pregnancy and reflect on the initiatives to prevent adolescent pregnancy. This study also aims to investigate current and previous pregnancies in a sample of 18 and 19 years old women in California. Women interviewed at the age of 18 or 19, who report a previous pregnancy, are assumed to have given birth from that prior pregnancy before the age of 18, indicating a teenage pregnancy. Among these young women, this study will explore alcohol use and previous tests for STDs as indicators of risk among women who may have had a teenage pregnancy.

Methodology

A secondary data set was utilized to test the hypotheses that this study set out to prove. The California Health Interview Survey (CHIS) is a health survey, based out of Los Angeles, and is the largest health survey conducted in the United States at the state level.

The CHIS conducts its survey using a random-dial telephone method and covers a variety of health-related topics. The CHIS provides a wide-range of comprehensive data on California's populations (California Health Interview Survey, n.d.).

The CHIS works in a collaborative effort with the California Department of Public Health (CDPH) and Department of Health Care Services (DHCS), and is mainly conducted by the University of California, Los Angeles (UCLA) Center for Health Policy Research. It is funded by public agencies and private organizations, with the main aim of improving the health care of all individuals in California. The CHIS conducts its surveys in all 58 countries across California (California Health Interview Survey, n.d.).

The survey provides statewide (including a diverse range of racial and ethnic groups) and country level information (to help countries with health care research, development, and comparison).

Study Design

The CHIS is a bi-yearly population-based, telephone-based, cross-sectional survey. The CHIS organizes separate interviews for different age groups: adults (18 years and above), adolescents (12 to 17 years), and children (birth

to 11 years). Over 50,000 individuals across different age groups are included in the CHIS survey. The participants are chosen on a random basis, and are representative of California's large and diverse population (California Health Interview Survey, n.d.).

The CHIS 2011-2012 teen data file that is available for public use was considered for this project. After preliminary analysis, it was determined that none of the adolescent pregnancy variables were included in the public use data file. The CHIS does not disclose information on adolescent pregnancy, for confidentiality reasons. Some pregnancies are caused due to statutory rape and since a juvenile is involved for legal purposes it is important to protect their identity.

Next, the 2011-2012 CHIS adult data was evaluated, as there are no legal implications to using data collected from individuals, who are over the age of 18. Adults were adolescents at one point, and could have had a pregnancy in their adolescent years. Unfortunately, the CHIS 2011-2012 survey did not contain the appropriate questions to extract information on adolescent pregnancy from adults.

Since the 2011-2012 public data set revealed no useful information on adolescent pregnancy, the 2005 CHIS adult publicly available data set was used. The 2005 California

Health Interview Survey had the appropriate questions on adolescent pregnancies and further analysis could be conducted. The youngest adult women surveyed in the 2005 CHIS were detected; that is, if they were less than 20 years of age.

Research Questions and Hypotheses

The 2005 Adult CHIS survey was analyzed for the current study. The research questions are as follows:

1. Are demographic characteristics such as race/ethnicity, household income, and type of insurance coverage contributors to adolescent pregnancy?

2. Are a person's social life style choices during their youth a contributor to adolescent pregnancy?

The three hypotheses that would be evaluated during the study are as follows:

1. Women who are currently pregnant at the time of the CHIS interview, when they are less than 20 years old, are less likely to have had a previous pregnancy.

2. Underage women who drink alcohol are more likely to get pregnant.

3. Women who had a pregnancy when they were less than 20 years old are more likely to be tested for sexually transmitted diseases (STDs).

The dependent variables that are to be analyzed in the study are: (1) Respondent's age when the first child was born (i.e., teenage pregnancy), (2) Consumption of alcohol over the past 30 days, and (3) Been tested for a sexually transmitted disease (STD), with the exception of HIV, over the last year.

The independent variables that are to be analyzed in this study are: (1) Currently pregnant or not and (2) Respondent's age when the first child was born (i.e., teenage pregnancy).

Data Evaluation

The 2005 Adult CHIS data set had to be modified to create a subset for the analysis to be conducted. The data set had to first be filtered by age and gender as the topic revolves around adolescent pregnancy.

After the subset has been generated, the analysis was conducted by using the data-subset. The questions used during the filtering process were analyzed as noted below.

QA05_E3 asked "How old were you when your first child was born?" The answers __YEARS OLD will be considered while REFUSED = -7 and DON'T KNOW = -8 were eliminated.

QA05_E7 asked "To your knowledge, are you now pregnant?" The answers YES = 1 and NO = 2 were considered while REFUSED = -7 and DON'T KNOW = -8 were eliminated.

QA05_C35 asked, "During the past 30 days, have you had at least one drink of any alcoholic beverage such as beer, vine, vine coolers, or liquor?" The answers YES = 1 and NO = 2 were considered while REFUSED = -7 and DON'T KNOW = -8 were eliminated.

QA05_D20 asked "Now thinking about other sexually transmitted diseases besides HIV—In the past 12 months, have you been tested for a sexually transmitted disease?" The answers YES = 1 and NO = 2 were considered while REFUSED = -7 and DON'T KNOW = -8 were eliminated.

Statistical Analysis

Statistical Package Social Science (SPSS) software version 22.0 was used to conduct the statistical secondary data analysis, which is described in Table 1.

TABLE 1. Summary of Statistical Analysis

Hypothesis	Dependent Variable	Independent Variable	Statistical Test
Women who are currently pregnant at the time of the CHIS interview, when they are less than 20 years old, are less likely to have had a previous pregnancy	Respondent's age when the first child was born (i.e., teenage pregnancy)	Currently pregnant or not	Chi-Square (χ^2)
Underage women who drink alcohol are more likely to get pregnant	Consumption of alcohol over the past 30 days	Respondent's age when the first child was born (i.e., teenage pregnancy)	Chi-Square (χ^2)
Women who had a pregnancy when they were less than 20 years old are more likely to be tested for sexually transmitted diseases (STDs)	Been tested for a sexually transmitted disease (STD) with the exception of HIV, over the last year	Respondent's age when the first child was born (i.e., teenage pregnancy)	Chi-Square (χ^2)

CHAPTER 3

RESULTS

Descriptive Statistics

The data set was obtained from the CHIS 2005 Adult Questionnaire and SPSS software was utilized to obtain results. A total of 43,020 adults participated in this study. For the purpose of this study, adult males were not included. The total female population that was included in the study was 25,548 (59.39%). The age range of the female population was from 18 to 85 years. However, only females less than 20 years of age are included in this study, with a total sample size of 390 (1.53% of the original sample).

Based on the sample size being studied, race was broken into seven categories: (1) Pacific Islander, (2) American Indian/Alaskan Native, (3) Asian, (4) African American, (5) White, (6) other single race, and (7) more than one race. Refer to Figure 1 to see the racial breakdown of the sample size. The category with the highest frequency is White females (51.3%), while the lowest one is Pacific Islander (1.5%).

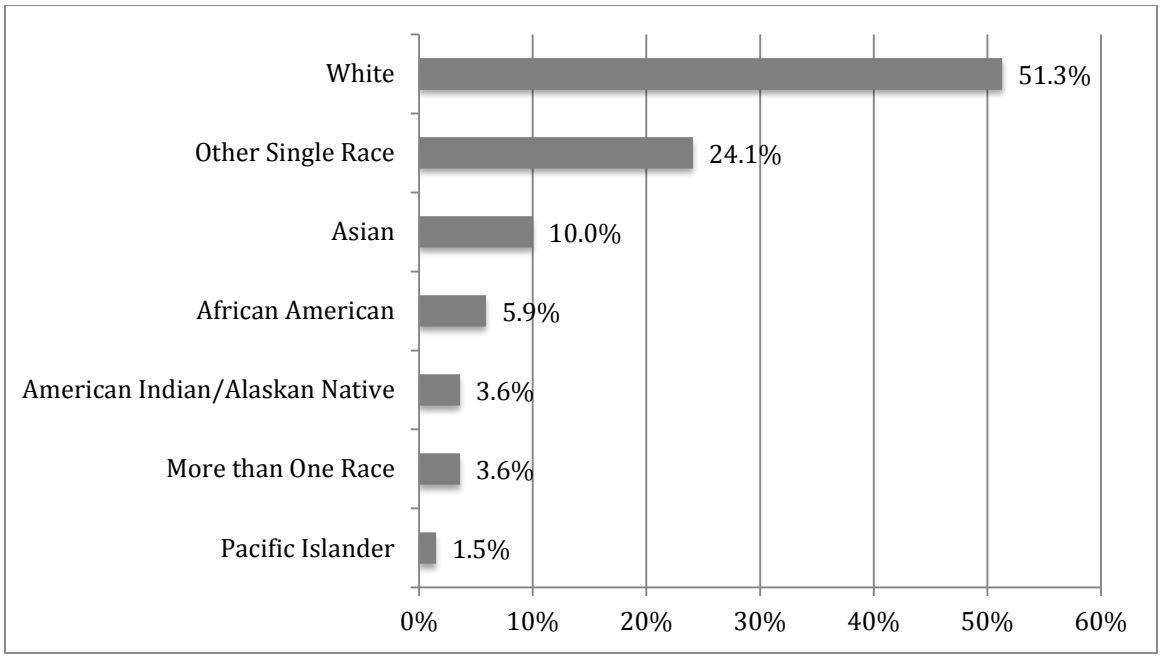

FIGURE 1. Racial breakdown of the sample size (*N* = 390).

In addition to studying the racial frequencies, the type of current health coverage was examined. There were eight categories: (1) uninsured, (2) Medicare & Medicaid, (3) Medicare & others, (4) Medicare only, (5) Medicaid, (6) employment-based, (7) privately purchased, and (8) healthy families/other public. Refer to Figure 2 to see the insurance distribution among the sample size.

The dependent variables for the analysis presented in the study are: (1) Respondent's age when the first child was born (i.e., teenage pregnancy), (2) Consumption of alcohol over the past 30 days, and (3) Been tested for a

sexually transmitted disease (STD), with the exception of HIV, over the last year.

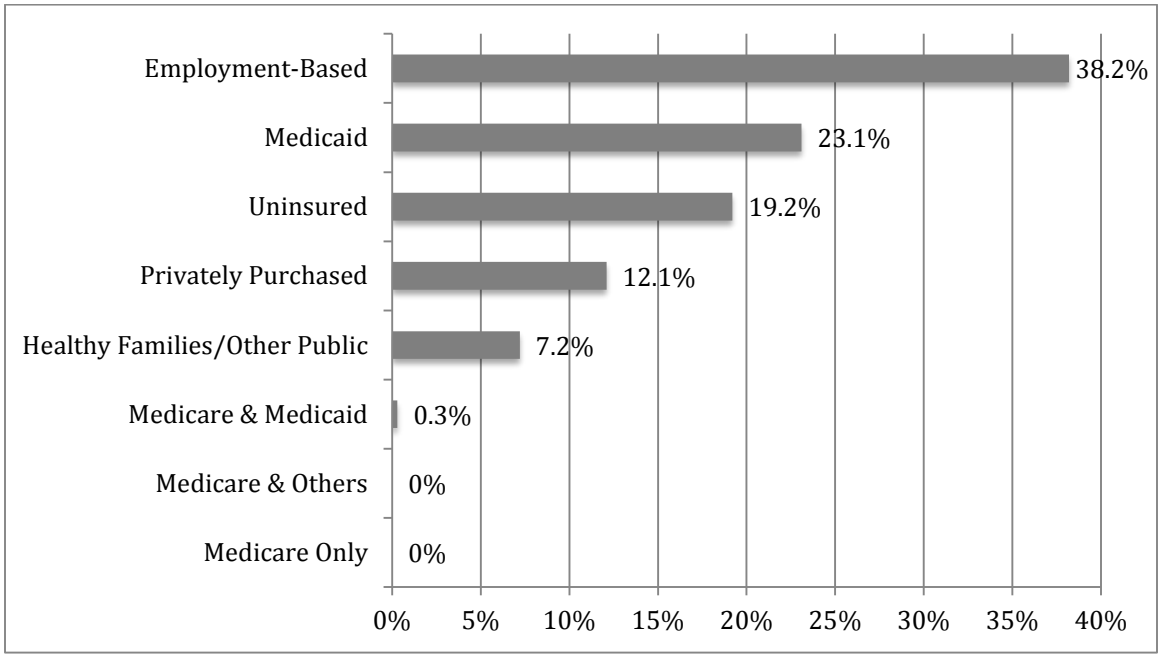

FIGURE 2. Insurance distribution among the sample size (*N* = 390).

The independent variables presented in the study are: (1) Currently pregnant or not, and (2) Respondent's age when the first child was born (i.e., teenage pregnancy).

According to the CHIS 2005 Adult Questionnaire, the question QA05_E3 asked "How old were you when your first child was born?" The responses showed that respondents less than or equal to the age of 18 were 29 (82.9%) in total. In addition, there were 6 (17.1%) respondents aged between 19 and 25 years, but they were excluded because the

exact age of the respondents were unknown. The age distribution of the respondents' is illustrated in Figure 3.

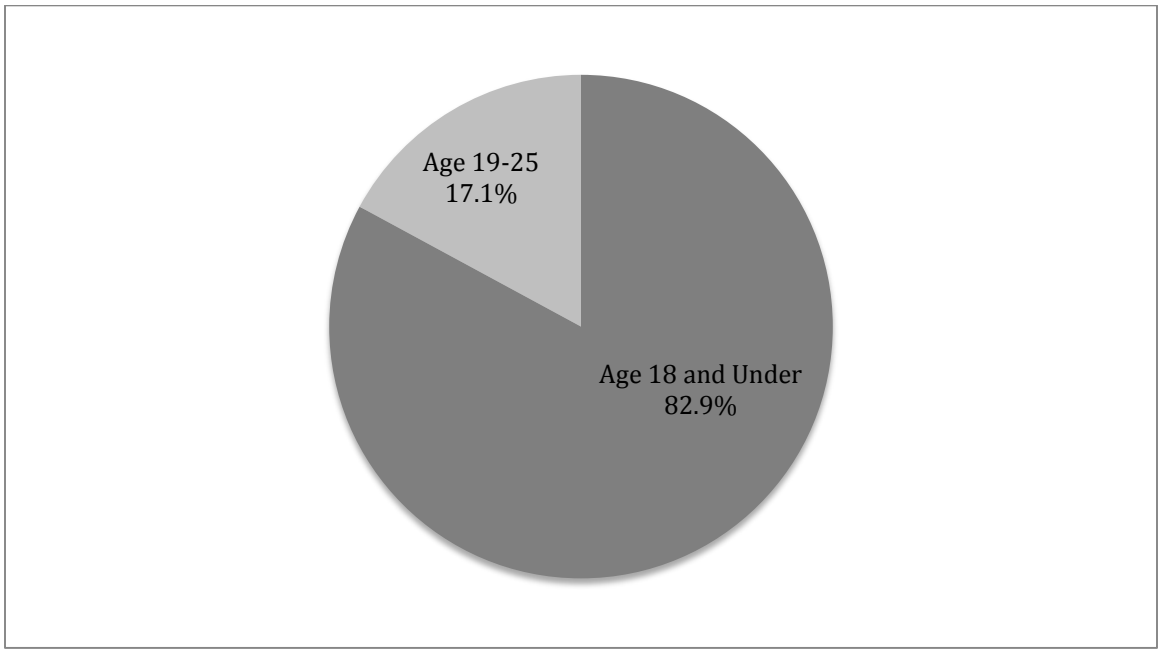

FIGURE 3. Age, when first child was born among 18-19 year old respondents, who reported any pregnancy (*N* = 35).

The question QA05_E7 asked "To your knowledge, are you now pregnant?" The responses showed that there were 11 (2.8%) pregnant females in total. The distribution of the responses to question QA05_E7 is illustrated in Figure 4.

The question QA05_C35 asked, "During the past 30 days, have you had at least one drink of any alcoholic beverage such as beer, vine, vine coolers, or liquor?" One hundred

fifty-five (39.7%) participants in total responded "YES." The distribution of the responses to question QA05_C35 is illustrated in Figure 5.

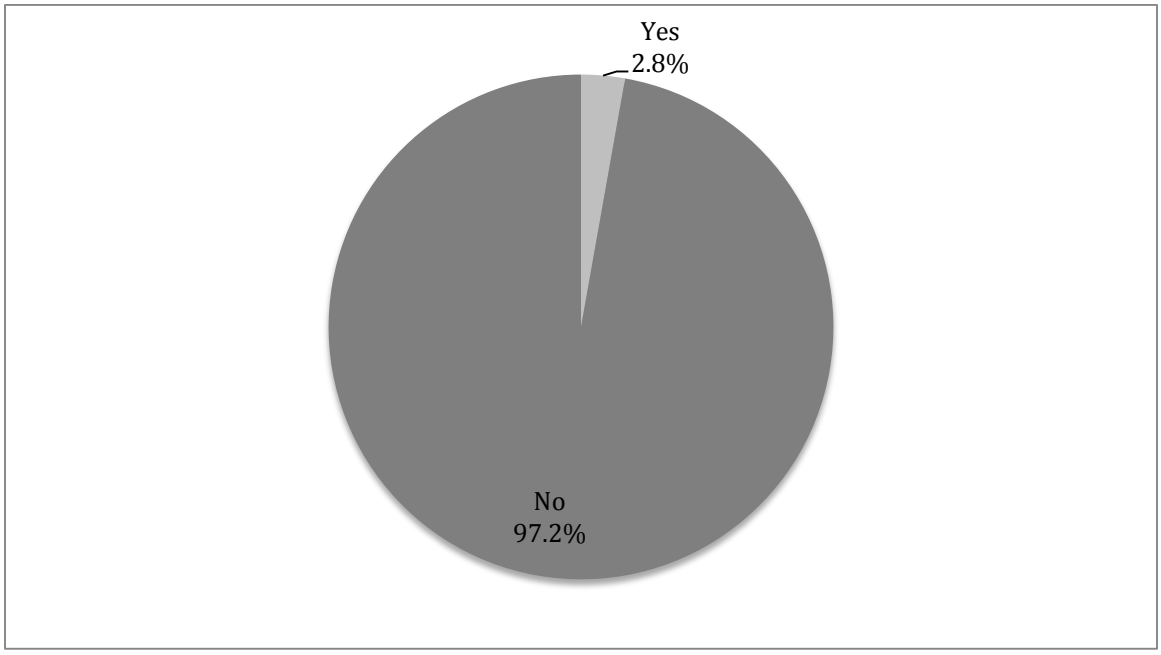

FIGURE 4. Pregnancy status at the time of the CHIS interview (*N* = 390).

The question QA05_D20 asked "Now thinking about other sexually transmitted diseases besides HIV—In the past 12 months, have you been tested for a sexually transmitted disease?" One hundred thirty-three (57.3%) participants in total responded "YES." The distribution of the responses to question QA05_D20 is illustrated in Figure 6.

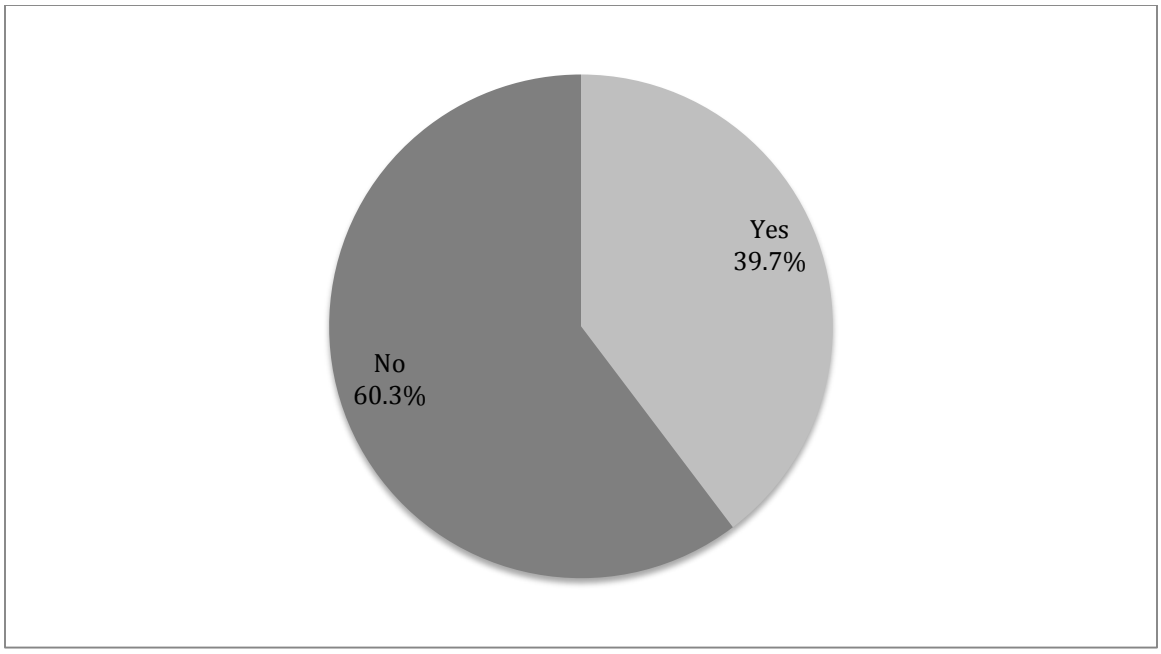

FIGURE 5. Alcohol consumption over the past 30 days (*N* = 390).

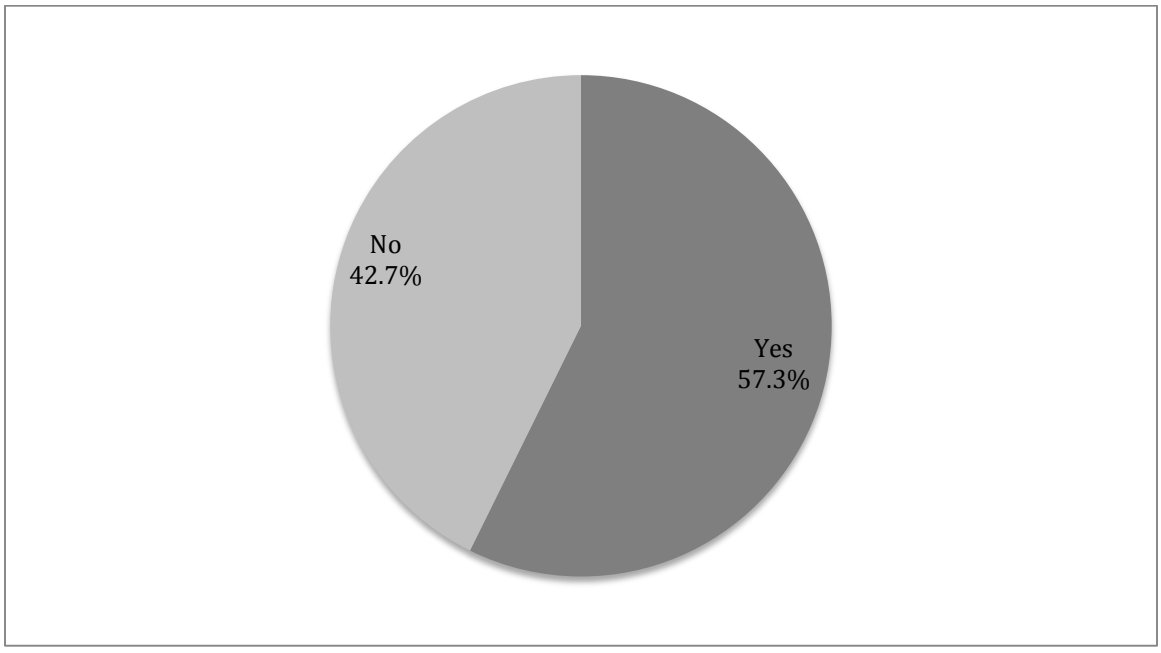

FIGURE 6. Been tested for an STD in the past 12 months (*N* = 232).

Hypotheses Testing

Hypothesis 1 predicted women who are currently pregnant at the time of the CHIS interview, when they are less than 20 years old, are less likely to have had a previous pregnancy. A Chi-square test was performed between the dependent variable "Respondent's age when the first child was born (i.e., teenage pregnancy)" and the independent variable "Currently pregnant or not." The association between the two variables was not statistically significant ($\chi^2(1, N = 35) = 1.207, p = .272$), therefore we fail to reject the null hypothesis.

Hypothesis 2 predicted underage women (who drink alcohol when they are not legally old enough to drink alcohol by state law [21 years]) who drink alcohol are more likely to get pregnant. A Chi-square test was performed between the dependent variable "Consumption of alcohol over the past 30 days" and the independent variable "Respondent's age when the first child was born (i.e., teenage pregnancy)." The association between the two variables was not statistically significant ($\chi^2(1, N = 35) = 1.336, p = .248$), therefore we fail to reject the null hypothesis.

Hypothesis 3 predicted women who had a pregnancy when they were less than 20 years old are more likely to be

tested for sexually transmitted diseases (STDs). A Chi-square test was performed between the dependent variable "Been tested for a sexually transmitted disease (STD) with the exception of HIV, over the last year" and the independent variable "Respondent's age when the first child was born (i.e., teenage pregnancy)." The association between the two variables was not statistically significant ($\chi^2(1, N = 34) = 2.242, p = .134$), therefore we fail to reject the null hypothesis.

The Chi-square test performed for the above three hypotheses were not statistically significant, which could be attributed to the cross-sectional nature of the study, as the data collected is one-dimensional. The CHIS data set poses potential data issues, such as static data and challenges in determining the cause and effect relation.

It is also important to note that the non-significant Chi-square test is not completely accurate and there could be potential room for error, thus any conclusion associated with the Chi-square test could be inaccurate as well.

According to the hypotheses and Chi-square tests performed, we expected to find a statistical significance between the dependent and the independent variables. However, all hypotheses were not statistically significant.

TABLE 2. Statistical Analysis

Hypothesis	Dependent Variable	Independent Variable	Statistical Test	*P* - Value
Women who are currently pregnant at the time of the CHIS interview, when they are less than 20 years old, are less likely to have had a previous pregnancy	Respondent's age when the first child was born (i.e., teenage pregnancy)	Currently pregnant or not	Chi-Square (χ^2)	.272
Underage women who drink alcohol are more likely to get pregnant	Consumption of alcohol over the past 30 days	Respondent's age when the first child was born (i.e., teenage pregnancy)	Chi-Square (χ^2)	.248
Women who had a pregnancy when they were less than 20 years old are more likely to be tested for sexually transmitted diseases (STDs)	Been tested for a sexually transmitted disease (STD) with the exception of HIV, over the last year	Respondent's age when the first child was born (i.e., teenage pregnancy)	Chi-Square (χ^2)	.134

The results and overall findings along with the limitations of this study will be discussed in Chapter 4, discussion and conclusions section.

CHAPTER 4

DISCUSSION AND CONCLUSIONS

Discussion

The overall purpose of this study was to outline the main factors that affect adolescent pregnancy and reflect on the initiatives to prevent adolescent pregnancy. This study focused on secondary data from women who reported a pregnancy during their teenage years.

Summary of Results

The data from the 2011-2012 CHIS was initially examined. It was found that this most recent version of the CHIS did not include questions related to the current study and that the data was not useful in providing the information needed to support the hypotheses predicted. For this reason, the 2005 CHIS adult data was examined. This data set had the necessary information needed to support the hypotheses. The variables were noted and analyzed as indicated in the methods section. The variables were then tested and compared across respondent's age when the first child was born (i.e., teenage pregnancy), consumption of alcohol, and being tested for an

STD besides HIV with the focus on adolescent pregnancy. These tests were performed to see how each group is affected. All three hypotheses were tested using Chi-square test.

Hypothesis 1 stated women who were less than 20 years old and pregnant at the time of the CHIS interview were less likely to have had a previous pregnancy. This was tested using the independent variable currently pregnant or not, and the dependent variable respondents' age when the first child was born (i.e., teenage pregnancy). Of the total respondents (N = 35), 82.9% were at the age of 18 and under when their first child was born. The hypothesis was not supported and the analysis was not statistically significant, probably because the sample size was too small. The sample was limited to women interviewed who were less than 20 years of age at the time of interview. This was a small number and the number of women in this sample, who reported any pregnancy, was smaller yet. There was not sufficient statistical power.

Hypothesis 2 stated underage women (i.e., the sample of women less than 20 years of age, all of whom are underage for alcohol consumption based on 21 years being the current legal drinking age in California) who drink alcohol are more likely to get pregnant. This was tested

using the independent variable respondent's age when the first child was born (i.e., teenage pregnancy), and the dependent variable consumption of alcohol over the past 30 days. Of the total respondents (N = 390), 39.7% reported to have consumed alcohol. The hypothesis predicted was not statistically significant as the sample size was too small.

Hypothesis 3 stated women who had a pregnancy when they were less than 20 years old are more likely to be tested for STDs. This was tested using the independent variable respondents' age when the first child was born (i.e., teenage pregnancy), and the dependent variable been tested for an STD, with the exception of HIV over the last year. Of the total respondents (N = 930), 57.3% had been tested for an STD. The hypothesis was not significant as the sample size was too small.

A Chi-square test was formally conducted using SPSS to test all three hypotheses. The first test was conducted to see if there was a relationship between respondents' age when the first child was born (i.e., teenage pregnancy) and if the respondent was currently pregnant or not. The second test was conducted to see if there was a relationship between consumption of alcohol and respondents' age when the first child was born (i.e., teenage pregnancy). The third test was conducted to see if

there was a relationship between having sexual intercourse at an early age and developing an STD. All three tests showed a *p*-value that is more than 5%, which indicates that the hypotheses predicted are not statistically significant.

Limitations

One of the main limitations is that the adolescent/teenage version of the CHIS does not record pregnancy among adolescent females. The lack of this information is a serious limitation. Because of the limitation in the teen CHIS data, the adult data set was used.

Adolescent pregnancy is not supported in the survey sampling due to the legal problems and confidentiality reasons of underage pregnancy. For this reason, the CHIS 2011-2012 survey did not contain the suitable information on adolescent pregnancy from adult and teenage publicly available data set.

The 2005 CHIS adult publicly available data set was used instead, as it had the suitable information. The CHIS 2005 adult data set had further limitations, as adolescents between the ages of 18 and 19 were considered, and below the age of 18 were not recorded. These limitations made it difficult to obtain data needed, and the sample size was significantly lowered.

Recommendations for Future Research

Future research studies should consider releasing data on adolescent pregnancy to the public, while protecting the identity of the individual. Additional research can be done on the causes that influence pregnancy among the adolescents. The limited publicly available data makes it difficult to hypothesize a possible cause, and to prove the hypothesis.

As mentioned above, one of the main limitations is that several publicly available data does not record variables on adolescent pregnancy. It is recommended that this data be included in future records.

Conclusion

In conclusion, adolescent pregnancy is a growing concern across the United States. Adolescents are young and naïve to not know the serious consequences of being pregnant. For this reason alone, further research must be conducted to control and prevent adolescent pregnancy. Communities must also take up initiatives to research and lower the rate of teenage pregnancy.

REFERENCES

REFERENCES

Azar, B. (2012). Adolescent pregnancy prevention: Highlights from a citywide effort. *American Journal of Public Health*, *102*(10), 1837–1841. doi:10.2105/AJPH.2012.300935

Braine, T. (2009). Adolescent pregnancy: A culturally complex issue. *Bulletin of the World Health Organization*, *87*(6), 410-411. doi:10.2471/BLT.09.020609

Breuner, C. C., Miller, R. J., Braverman, P. K., Adelman, W. P., Breuner, C. C., Levine, D. A., … Baumberger, J. (2014). Addendum—adolescent pregnancy: Current trends and issues. *Pediatrics*, *133*(5), 954–957. doi:10.1542/peds.2014-0450

Burr, J. E., Roberts, T. A., & Bucci, J. R. (2013). Dependent adolescent pregnancy rates and risk factors for pregnancy in the military health care system. *Military Medicine*, *178*(4), 412–415. doi:10.7205/MILMED-D-12-00461

California Health Interview Survey. (n.d.). *About*. Retrieved from http://healthpolicy.ucla.edu/chis/about/Pages/about.aspx

California Health Interview Survey. (n.d.). *2005*. Retrieved from http://healthpolicy.ucla.edu/chis/data/public-use-data-file/Pages/2005.aspx

California Health Interview Survey. (n.d.). *2011-2012*. Retrieved from http://healthpolicy.ucla.edu/chis/data/public-use-data-file/Pages/2011-2012.aspx

Centers for Disease Control and Prevention. (2011). *Adolescent pregnancy and childbirth: United States, 1991-2008*. Retrieved from http://www.cdc.gov/mmwr/preview/mmwrhtml/su6001a23.htm

Centers for Disease Control and Prevention. (2012). *Youth Risk Behavior Surveillance: United States, 2011.* Retrieved from http://www.cdc.gov/mmwr/preview/mmwrhtml/ss6104a1.htm

Centers for Disease Control and Prevention. (2015). *National Survey of Family Growth.* Retrieved from http://www.cdc.gov/nchs/nsfg.htm

Clutter, L. B. (2014). Adult birth mothers who made open infant adoption placements after adolescent unplanned pregnancy. *Journal of Obstetric, Gynecologic, & Neonatal Nursing*, *43*(2), 190–199. doi:10.1111/1552-6909.12280

Finer, L. B., & Philbin, J. M. (2013). Sexual initiation, contraceptive use, and pregnancy among young adolescents. *Pediatrics*, *131*(5), 886–891. doi:10.1542/peds.2012-3495

Finer, L. B., & Zolna, M. R. (2011). Unintended pregnancy in the United States: Incidence and disparities, 2006. *Contraception*, *84*(5), 478–485. doi:10.1016/j.contraception.2011.07.013

Gennari, P. J. (2013, January). Adolescent pregnancy in developing countries. *International Journal of Childbirth Education*, *28*(1), 57–62.

Goyal, M., Hersh, A., Luan, X., Mollen, C., Localio, R., Trent, M., & Zaoutis, T. (2013). Frequency of pregnancy testing among adolescent emergency department visits. *Academic Emergency Medicine*, *20*(8), 816–821. doi:10.1111/acem.12186

Kost, K., & Henshaw, S. (2013). US Teenage pregnancies, births and abortions, 2008: State trends by age, race and ethnicity. Retrieved from https://www.guttmacher.org/pubs/USTPtrendsState08.pdf

Madigan, S., Wade, M., Tarabulsy, G., Jenkins, J. M., & Shouldice, M. (2014). Association between abuse history and adolescent pregnancy: A meta-analysis. *Journal of Adolescent Health*, *55*(2), 151–159. doi:10.1016/j.jadohealth.2014.05.002

Magness, J. (2012, October). Adolescent pregnancy: The role of the healthcare provider. *International Journal of Childbirth Education*, *27*(4), 61–64.

Marcell, A. V., Wibbelsman, C., Seigel, W. M., & Committee on Adolescence. (2011). Male adolescent sexual and reproductive health care. *Pediatrics*, *128*(6), e1658-1676. doi:10.1542/peds.2011-2384

Miller, J. A., Graefe, D. R., & De Jong, G. F. (2013). Health insurance coverage predicts lower childbearing among near-poor adolescents. *Journal of Adolescent Health*, *53*(6), 749–755. doi:10.1016/j.jadohealth.2013.06.024

Minnick, D., J., & Shandler, L. (2011). Changing adolescent perceptions on teenage pregnancy. *Children & Schools*, *33*(4), 241–248.

Montgomery, T. M., Folken, L., & Seitz, M. A. (2014). Addressing adolescent pregnancy with legislation. *Nursing for Women's Health*, *18*(4), 277–283. doi:10.1111/1751-486X.12133

Morgen, C. S., Bjørk, C., Andersen, P. K., Mortensen, L. H., & Andersen, A. M. N. (2008). Socioeconomic position and the risk of preterm birth—a study within the Danish National Birth Cohort. *International journal of epidemiology*, *37*(5), 1109-1120.

Office of Adolescent Health. (2011). *Homepage*. Retrieved October 27, 2014, from http://www.hhs.gov/ash/oah/

Office of Adolescent Health. (2014). *Healthy People 2020*. Retrieved October 27, 2014, from http://www.hhs.gov/ash/oah/resources-and-publications/healthy-people-2020.html

Paranjothy, S., Broughton, H., Adappa, R., & Fone, D. (2009). Teenage pregnancy: Who suffers? *Archives of Disease in Childhood, 94*(3), 239–245. doi:10.1136/adc.2007.115915

The Patient Protection and Affordable Care Act of 2010, H.R. 3590, 111th Cong., 2nd Sess. (2010).

Pazol, K., Zane, S. B., Parker, W. Y., Hall, L. R., Berg, C., Cook, D. A., & Centers for Disease Control and Prevention (CDC). (2011). Abortion surveillance: United States, 2008. *Morbidity and Mortality Weekly Report. Surveillance Summaries*, *60*(15), 1–41.

Pires, R., Araújo-Pedrosa, A., Pereira, J., & Canavarro, M. C. (2014). Preventing adolescent pregnancy: Biological, social, cultural, and political influences on age at first sexual intercourse. *The Journal of Primary Prevention*, *35*(4), 239–254. doi:10.1007/s10935-014-0344-5

Tanner, A. E., Jelenewicz, S. M., Ma, A., Rodgers, C. R. R., Houston, A. M., & Paluzzi, P. (2013). Ambivalent messages: Adolescents' perspectives on pregnancy and birth. *Journal of Adolescent Health*, *53*(1), 105–111. doi:10.1016/j.jadohealth.2012.12.015

University of Maryland Medical Center (2014). *Adolescent pregnancy*. Retrieved from http://umm.edu/health/medical/ency/articles/adolescent-pregnancy

Winner, B., Peipert, J. F., Zhao, Q., Buckel, C., Madden, T., Allsworth, J. E., & Secura, G. M. (2012). Effectiveness of long-acting reversible contraception. *New England Journal of Medicine*, *366*(21), 1998–2007. doi:10.1056/NEJMoa1110855

Wisnieski, D., Sieving, R. E., & Garwick, A. W. (2013). Influence of peers on young adolescent females' romantic decisions. *American Journal of Health Education*, *44*(1), 32–40. doi:10.1080/19325037.2012.749716

Xie, Y., Harville, E. W., & Madkour, A. S. (2014). Academic performance, educational aspiration and birth outcomes among adolescent mothers: A national longitudinal study. *BMC Pregnancy & Childbirth*, *14*(1), 1–20. doi:10.1186/1471-2393-14-3