

PRAMISGRAM

OKLAHOMA PREGNANCY RISK ASSESSMENT MONITORING SYSTEM VOL 9 NO 3 2005

Adolescent Pregnancy

INTRODUCTION:

The United States has the highest adolescent birth rate among comparable industrialized nations. It is estimated that adolescent pregnancy costs the United States at least \$7 billion annually¹. Oklahoma has seen a steady decline in reported adolescent pregnancy and birth rates in recent years. However, Oklahoma's adolescent birth rate of 56 births per 1,000 females in 2003 is still 33.3% higher than the national rate of 42 births per 1,000 females, ages 15-19. It is estimated that the cost of adolescent births to the Oklahoma healthcare system was \$24.4 million for 2002².

Many adolescents in Oklahoma engage in behaviors that put them at greater risk for unintended pregnancy as well as poor birth outcomes. Data from the Oklahoma Youth Risk Behavior Survey (YRBS) 2003 show that half of all Oklahoma high school students reported being sexually active at least once, while 37.2% reported having sexual intercourse with one or more people during the past three months. Of those students who had sexual intercourse during the past three months, 64.3% reported using a condom during their last sexual intercourse.

Childbearing by adolescent females may result in poor health outcomes both to the mother and the infant. Health risks to the mother include pre-eclampsia, eclampsia, anemia, operative vaginal delivery, episiotomy, postpartum hemorrhage, and puerperal endometritis³⁻⁶. Adverse outcomes for the infant include low birth weight, small for gestational age, premature birth, late fetal death, and infant mortality. It is unknown to what extent the poor outcomes of adolescent pregnancy are related to the biological immaturity of the adolescent female's body, a result of sociodemographic and behavioral risk factors, or both. Biological factors that have been associated consistently with negative pregnancy outcomes are poor nutritional status, low prepregnancy weight for height, parity, and poor pregnancy weight gain^{3,4}. Social factors include poverty, unmarried, low educational levels, smoking, drug use, and inadequate prenatal care⁶.

These adverse outcomes are a heavy burden to Oklahoma's economic, educational, healthcare, and public assistance systems. Adolescent mothers may experience school interruption, persistent poverty, limited vocational opportunities, separation from the child's father, divorce, and repeat pregnancy⁷. Adolescent mothers are more likely to rely on public assistance (nearly 80% of unmarried adolescent mothers end up in poverty)^{8,9}. Infants born prematurely and at low or very low birth weights spend longer stays in Neonatal Intensive Care Units (NICU) and often require more specialized treatment during their first years of life. This *PRAMISGRAM* will examine adolescent pregnancy in Oklahoma and offer recommendations on how to address this important public health concern.

In Oklahoma

- More than two-thirds of adolescent mothers (<20 years of age) had no insurance when they became pregnant.
- Almost one-fourth (23.6%) of older adolescent mothers reported having a previous live birth. Over ten percent (11.3%) of younger adolescent mothers (≤17 years of age) reported at least one previous live birth.
- Almost 60% of adolescent mothers were not using birth control at the time of conception.
- Nearly one-fourth (23.6%) of younger adolescent mothers did not know they were pregnant until after the 12th week of their pregnancy.
- Adolescents reported, "Thought I could not become pregnant" as the most common reason for not using contraceptives.

METHODS:

For this report, PRAMS data for years 2000-2003 were examined. Initially, 9,736 mothers were sampled and sent the survey. Of these, 7,680 responded yielding a response rate of 78.9%. For purposes of this report, mothers ≥20 years of age will be referred to as adult mothers, mothers 18-19 years of age as older adolescent mothers, and mothers ≤17 years of age as younger adolescent mothers. In this descriptive analysis, older adolescent and younger adolescent mothers are compared to adult mothers along demographic, socioeconomic, and pregnancy-related dimensions. Adolescent mothers made up approximately 15% (n=1,132) of the available sample, with two-thirds of these being women aged 18-19 years.

SUDAAN® statistical software was used to produce population estimates and standard errors. Population estimates are described by social, demographic, and pregnancy-associated outcomes.

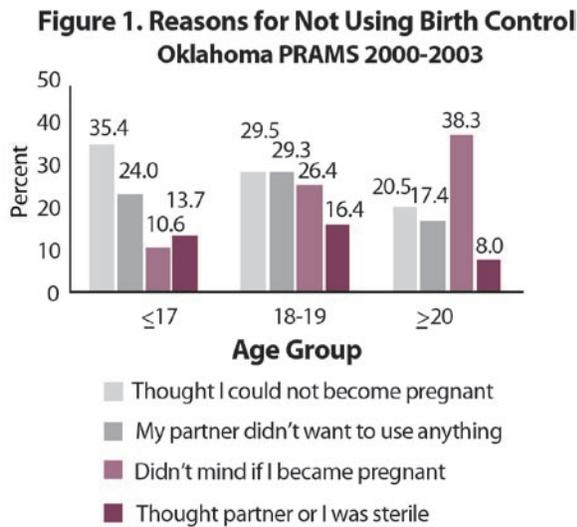
The Pregnancy Risk Assessment Monitoring System (PRAMS) is an ongoing, population-based study designed to collect information about maternal behaviors and experiences before, during, and after pregnancy. On a monthly basis, PRAMS samples between 200 and 250 recent mothers from the Oklahoma live birth registry. Mothers are sent as many as three mail questionnaires seeking their participation, with follow-up phone interviews for non-respondents. A systematic stratified sampling design is used to yield sample sizes sufficient to generate population estimates for groups considered at risk for adverse pregnancy outcomes. Information included in the birth registry is used to develop analysis weights that adjust for probability of selection and non-response.

RESULTS:

Though whites made up the largest number of births to Oklahoma adolescents in 2003 (70%), significant racial disparities exist. Nearly one-quarter (23.9%) of all births to African Americans were to adolescent mothers compared to 13.4% for white mothers. Adolescent births represented 22.9% of all births to American Indian mothers (data not shown). There were no significant differences seen in regard to ethnicity, with 15.7% of all births to Hispanics occurring to adolescent mothers compared to 14.9% of non-Hispanic births.

Poverty is strongly linked with adolescent pregnancy and parenthood¹⁰. Among mothers who reported income, more than 44% of adolescent mothers reported to be below 100% of the Federal Poverty Level (FPL) compared to 25.2% of adult mothers. Two-thirds (67.7%) of adolescent mothers were without insurance when they became pregnant versus 44.3% of adult mothers (Table 1). Adolescent mothers were 1.8 times more likely than adult mothers to be on WIC during their pregnancy and 1.7 times more likely to have their prenatal care covered by Medicaid (Table 1).

An unintended pregnancy is defined as a pregnancy that is either mistimed or unwanted. Four out of five (81%) of younger adolescent mothers stated that their pregnancy was unintended compared to 73.5% of older adolescent mothers and 45.1% of adult mothers (Table 1). Although the rates for unintended pregnancy differed greatly, almost three-fifths of adolescent and adult mothers (59.3% and 58.5% respectively) were not using birth control when they became pregnant (Table 2). When asked reasons for not using birth control, younger adolescents were the most likely to select “thought I could not become pregnant at that time” (Figure 1). Other reasons for not using birth control included: “had problems getting birth control” and “had side effects from birth control”. Respondents could select more than one option.



Receiving prenatal care early and often is an important component in improving the health of mothers and infants. Almost sixty percent (59.9%) of younger adolescent mothers began prenatal care during the first trimester, compared to 71.4% of older adolescent mothers and 81.1% of adult mothers (Table 1). Adolescent mothers were almost twice as likely as adult mothers to receive late or no prenatal care at all. This could be due in part to the fact that younger mothers are unaware of their pregnancy until later in their term: almost one-fourth (23.6%) of younger adolescent mothers did not know they were pregnant until after their 12th week compared to 10.7% of older adolescent mothers and 6.4% of adult mothers (Table 1).

Table 1. Demographic and Pregnancy Characteristics Among Younger Adolescent, Older Adolescent, and Adult Mothers, Oklahoma PRAMS 2000-2003

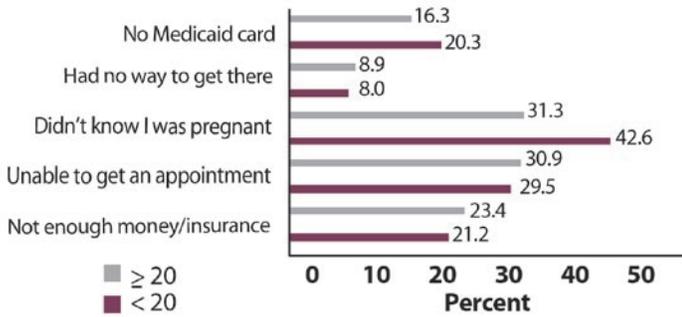
	≤17 % (SE)	18-19 % (SE)	<20 % (SE)	≥20 % (SE)
Maternal Race				
White	68.1 (4.1)	72.5 (2.7)	71.0 (2.3)	81.3 (0.7)
African American	21.2 (3.7)	11.0 (1.9)	14.3 (1.8)	8.0 (0.6)
American Indian	10.6 (2.7)	16.1 (2.2)	14.3 (1.7)	8.5 (0.5)
Other	-	-	-	2.2 (0.3)
Maternal Ethnicity				
Hispanic	7.1 (2.1)	12.1 (2.0)	10.5 (1.5)	10.0 (0.6)
Non-Hispanic	92.9 (2.1)	87.9 (2.0)	89.5 (1.5)	90.0 (0.6)
Marital Status				
Not Married/Other	92.6 (2.2)	82.4 (2.2)	85.7 (1.7)	33.7 (1.0)
Poverty Level				
<100% FPL	48.1 (6.1)	43.3 (3.6)	44.5 (3.1)	25.2 (1.0)
100%-184% FPL	36.8 (5.9)	41.0 (3.5)	39.9 (3.1)	27.8 (1.0)
≥185% FPL	15.1 (4.4)	15.7 (2.5)	15.5 (2.2)	47.0 (1.1)
Insurance Before Pregnancy				
No	60.5 (4.3)	71.2 (2.7)	67.7 (2.3)	44.3 (1.0)
Trimester Entry Into PNC				
First	59.9 (4.5)	71.4 (2.9)	67.7 (2.4)	81.1 (0.8)
Second/Third	37.5 (4.4)	27.4 (2.8)	30.7 (2.4)	18.2 (0.8)
On WIC During Pregnancy				
Yes	85.9 (3.0)	83.4 (2.3)	84.2 (1.8)	48.1 (1.0)
PNC Covered by Medicaid				
Yes	76.2 (3.8)	76.2 (2.6)	76.2 (2.1)	45.8 (1.0)
Pregnancy Intendedness				
Unintended	81.7 (3.4)	73.5 (2.6)	76.2 (2.1)	45.1 (1.0)
PNC as Early as Desired				
Yes	61.3 (4.3)	66.7 (2.9)	64.9 (2.4)	77.3 (0.8)
Previous Live Births				
None	86.6 (3.1)	71.3 (2.8)	76.3 (2.2)	33.6 (0.9)
One	11.3 (2.9)	23.6 (2.6)	19.6 (2.0)	34.6 (0.9)
Two or More	-	5.1 (1.4)	4.1 (1.1)	31.9 (0.9)
Weeks of Gestation When Mother Knew She was Pregnant				
1-4 WKS	32.6 (4.2)	35.4 (3.0)	34.5 (2.4)	42.4 (1.0)
5-8 WKS	26.8 (4.0)	35.6 (3.0)	32.7 (2.4)	39.2 (1.0)
9-12 WKS	17.0 (3.3)	18.3 (2.4)	17.9 (2.0)	12.1 (0.7)
≥13 WKS	23.6 (3.9)	10.7 (1.9)	14.9 (0.5)	6.4 (0.5)

(-) Results are too small to be statistically reliable

Other issues are the barriers mothers face when attempting to get prenatal care. Nearly one-third of all mothers stated they were unable to make an appointment. More than one out of five mothers stated they did not have enough money or insurance to pay for the care (Figure 2).

Tobacco use and alcohol consumption can adversely affect the mother's overall health and that of her unborn child. More than 41% of adolescent mothers stated that they smoked three months before pregnancy versus 28.5% of adult mothers (Table 2). Although many adolescent mothers abstained from smoking during their third trimester, most returned to smoking once the baby had been born. Upon examining alcohol use during the last three months before pregnancy, adult mothers had slightly higher reported rates of consumption than adolescent mothers (44.9% and 35.7% respectively).

Figure 2. Barriers to Receiving Prenatal Care by Mother's Age-Group, Oklahoma PRAMS 2000-2003



Adolescent mothers are less likely to gain the appropriate amount of weight while pregnant. Over 54% of adolescent mothers gained over the recommended amount of weight compared to 43.1% of adult mothers (Table 2).

Poor birth outcomes are strongly associated with adolescent pregnancy. Adolescent mothers were 1.5 times more likely to have a low birth weight baby than adult mothers and were 1.4 times more likely to have a pre-term birth than adult mothers (Table 2).

DISCUSSION:

As the data in this report indicate, adolescents in Oklahoma are more likely than their adult counterparts to experience an unintended pregnancy and have adverse pregnancy outcomes such as higher rates of low birth weight births and pre-term births. Younger adolescents are of special concern because of the biological immaturity of their reproductive systems. One in four younger adolescent mothers did not confirm they were pregnant until they were in their second trimester. Since fetal organ development is completed and therefore highly susceptible to teratogens during the first trimester, early recognition of pregnancy is vital to the health of the infant¹¹. Important behaviors such as prenatal vitamin usage, abstinence from alcohol and tobacco, and obtaining prenatal care, may not begin at the optimal time for those females who do not know they are pregnant before the second trimester.

The economic implications of adolescent pregnancy should be of great concern to policy-makers, health care providers, youth-serving organizations, educators, and businesses, at both the state and community levels. Adolescent mothers were 1.8 times more likely than adult mothers to be on WIC, the special supplemental nutrition program for women, infants and children, during their pregnancy and 1.7 times more likely to have their prenatal care covered by Medicaid. According to the estimated cost of adolescent pregnancy to the state, \$24.4 million in 2002, every adolescent pregnancy averted will produce a savings of approximately \$3,300². The average annual number of births to adolescents 15-19 years of age over the past decade is 7,582. If only 10% of these births were prevented it could possibly mean a savings of \$2.5 million each year. However, the economic impact of adolescent births reaches well beyond the costs for medical care. Studies have shown that the children of adolescent mothers are more likely to perform poorly in school¹², and are at greater risk of abuse and neglect¹³. The sons of adolescent mothers are 13% more likely to end up in prison while adolescent daughters are 22% more likely to become adolescent mothers¹⁴.

Adolescent pregnancy is a multifaceted issue that requires multiple, comprehensive solutions that meet the needs of adolescents and guide parents, health care providers, schools, youth-serving programs, and community organizations in finding and promoting effective, evidence based prevention strategies. It is crucial that our state and its communities recognize both the short and long-term negative effects of adolescent pregnancy and make smart and intentional prevention investments that will produce results in the years ahead.

Table 2. Maternal Characteristics by Behavior and Outcomes Among Adolescent, and Adult Mothers, Oklahoma PRAMS 2000-2003

	<20		>20	
	%	SE	%	SE
Smoked Three Months Before Pregnancy				
YES	41.6	(2.5)	28.5	(0.9)
Smoked Last Three Months During Pregnancy				
YES	22.8	(2.2)	17.6	(0.8)
Smoking at Time of PRAMS Survey				
YES	37.3	(2.5)	24.2	(0.9)
Alcohol Use Last Three Months Before Pregnancy				
YES	35.7	(2.4)	44.9	(1.0)
Alcohol Use Last Three Months During Pregnancy				
NO	98.8	(0.5)	96.8	(0.4)
Using Birth Control at Time of Pregnancy				
NO	59.3	(2.7)	58.5	(1.3)
Birth Weight				
Very Low Birth Weight (<1,500 GMS) ¹	1.3	(0.1)	1.0	(0.01)
Low Birth Weight (<2,500 GMS) ¹	8.4	(0.5)	5.8	(0.1)
Pregnancy Weight Gain^{1,2}				
Under Recommended	15.3	(1.9)	20.7	(0.9)
Within Recommended	29.9	(2.4)	36.2	(1.0)
Over Recommended	54.9	(2.7)	43.1	(1.0)
Preterm^{1,3}	10.4	(1.3)	7.3	(0.4)

¹Singleton Births Only

²Adjusted for Gestational Age and Pre-Pregnancy Body Mass Index.

³Gestational Age < 37 Weeks

(-) Results are too small to be statistically reliable

Several limitations for this study exist. The analysis looked at variables independently and did not control for covariates. Adjusting for covariates may moderate these relationships. It is likely there was under-reporting for both alcohol and tobacco use among all mothers due to social desirability which may be even more pronounced for adolescents because of legal issues. All data on weight gain, substance use, prenatal care usage and birth control are self-reported and may be subject to recall bias.

RECOMMENDATIONS:

Policy

- Support evidence-based and medically accurate adolescent pregnancy prevention programs and curricula and provide priority funding that target communities and populations with the highest rates of adolescent pregnancy.
- Support legislation, such as increases in Medicaid reimbursements, that encourages health care providers to give care to high-risk and indigent clients.
- Support legislation that mandates and funds high quality, coordinated school health programs to provide age-appropriate and medically accurate education on human growth and development, abstinence and contraception, as well as prenatal health.

- Use Temporary Assistance to Needy Families (TANF) funds to support more health education and adolescent pregnancy prevention programs for youth in poverty.
- Provide funding for school-based programs and services that help pregnant and parenting adolescents obtain needed health services, complete their education, and prevent repeat pregnancies while in their teens.

Parents/Communities

- Support the implementation of school health programs that provide age-appropriate, medically accurate, high quality sexuality education for adolescents, with a priority on programs for young people at greatest risk due to poverty.
- Encourage community-based programs that provide information and skill-building opportunities for parents and adults working with youth-serving programs that will enable them to communicate more effectively about healthy relationships, sexual health and related maturation issues.
- Support the development of school and community programs and health services that enable pregnant and parenting teens to complete their education and avoid a rapid repeat pregnancy.

Health Care Providers

- Be sensitive to issues surrounding adolescent sexuality and be prepared to listen to and effectively serve adolescent clients, which may include obtaining a developmentally appropriate confidential sexual history and discussing contraceptive options, with abstinence being the only method that is 100% effective⁷.
- Encourage and participate in community efforts to delay onset of sexual activity among adolescents and prevent first and subsequent adolescent pregnancies.
- Encourage pregnant adolescents to adopt healthy behaviors such as proper diet, smoking and alcohol cessation, appropriate weight gain, and accessing prenatal care early and often.
- Be aware of signs of depression in pregnant and parenting adolescents. Refer for counseling when appropriate. Provide follow-up to ensure the client has received the appropriate services.
- Be flexible in appointment scheduling to ensure that mothers are seen in a timely manner and given the appropriate care.
- Be aware of and sensitive to the different cultures in the local community; hire and train program staff who can provide health services and prevention programs in ways that effectively meet the specific medical, cultural, and social needs of the young people who are the program and service recipients.

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Acknowledgements

James M. Crutcher, MD, MPH
 Commissioner of Health and State Health Officer

Edd D. Rhoades, MD, MPH
 Deputy Commissioner, Family Health Services

Suzanna Dooley, MS, ARNP
 Chief, Maternal and Child Health Service

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