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Sexual Activity, Knowledge, and Attitudes Among North Carolina Adolescents, 2002

by

J. Timothy Whitmire, Ph.D.
Paul A. Buescher, Ph.D.

ABSTRACT

Objectives: The objective of this study is to examine differences in the level of reported sexual activity, parental communication, and knowledge and attitudes about birth control and sexuality among selected groups of North Carolina middle and high school students.

Methods: Surveys were administered to middle and high school students by the Adolescent Pregnancy Prevention Program of the North Carolina Division of Public Health in the fall of 2002. The data were processed and descriptive statistics were produced by staff of the State Center for Health Statistics using SAS software.

Results: Among survey respondents, approximately 16 percent of middle school students and 30 percent of high school students reported ever having had sexual intercourse. Approximately 2 percent of those in middle school and 3 percent of those in high school reported that they had gotten a girl pregnant or that they had been pregnant. Higher rates of sexual activity were reported among boys, African Americans, high school students, and adolescents with a low grade point average (GPA). Among those who had sexual intercourse during the past three months, one-third did not always use contraception. Those more likely to report that they used contraception were boys, high school students, students of an "Other" race, and students with a high GPA.

Conclusions: These findings show that middle and high school students with higher GPAs are more likely to postpone sexual intercourse and more likely to use contraception when sexually active. The findings also suggest that positive communication between parents and adolescents contributes to the postponement of sexual activity during adolescence.



Introduction

In recent decades, North Carolina has experienced teen pregnancy rates higher than the national average.¹ In response, several programs have emerged to work to prevent teen pregnancies. One program, the Adolescent Pregnancy Prevention Program² (APPP) provides funding for local, community-based teen pregnancy prevention projects throughout the state. The local programs focus on the prevention of teen pregnancy by offering a variety of program components such as abstinence and life skills education, youth counseling services, parent workshops, community awareness, male involvement, and other support services to adolescents and parents.

As a part of the APPP initiative, local programs survey adolescents in the fall and spring of each school year to gain a better understanding of their attitudes, level of knowledge, and sexual activity. Parental permission is required for adolescents to participate in the program and to take the survey. The present study presents results from the fall 2002 surveys administered to middle and high school students.

Methods

Development and Use of the Survey Instruments

The staff of the APPP collaborated with local pregnancy prevention programs to develop questionnaires to be administered to participating adolescents. Since the questions on the survey pertain to sexuality and are of a highly sensitive nature, local programs have some choice about what questions to include on the questionnaires. A question considered appropriate for inclusion by one program may be viewed as inappropriate by another program. To meet the various needs of local programs, five different questionnaires were developed for use among 134 programs. Although multiple questionnaires provided local programs with more control over the survey, it limited the ability to present statewide information.

Since the aim of the present study is to present state-wide results, the inconsistent inclusion of questions limited the number of survey instruments that could be included in this analysis. The present study was limited to the Teen Pregnancy Prevention Survey I (TPPS I) and the Teen Pregnancy Prevention Survey II (TPPS II) questionnaires. Adolescents completed the surveys during their participation in teen outreach programs, after-school programs, and health and sexual education courses. This was in no way a random sample of adolescents in North Carolina, so the results may not be representative of the entire population of adolescents in the state.

Four hundred twelve respondents from TPPS I and 2,546 from TPPS II were included in the analyses. These two surveys combined represented 76 percent of the total APPP surveys completed in the fall of 2002. TPPS I included 52 true/false questions and TPPS II included 44 true/false questions. Most of the questions appeared on both instruments, but some were unique. Spanish versions of both TPPS I and TPPS II questionnaires were administered. Approximately 54 percent of the 325 Latino respondents completed the survey in Spanish.

Data

Questionnaires were keyed by SC Data, Inc. of Raleigh, N.C. SAS software was used for data processing and analysis. Middle school students were identified as those reporting a current grade level of 6, 7, or 8. High school students were identified as those reporting a current grade level of 9, 10, 11, or 12.

The grade point average (GPA) variable was created by assigning a numeric value to self-reported letter grades for English, mathematics, science, and social studies from the child's latest report card. Since the distribution of GPAs was skewed toward the high end, adolescents were assigned to low, medium, and high GPA groups based on their GPA for these four subjects being in the lowest, middle, or highest third of the distribution. On a 4-point scale, a "low" GPA was 0 – 2.5, a "medium" GPA was 2.6 – 3.25, and a "high" GPA was greater than

3.25. If a respondent failed to report a grade for one or more of the four grades, the GPA could not be calculated for that respondent. As a consequence, GPA could not be computed for approximately 42 percent of the respondents. However, respondents with missing GPA were not left out of the overall results.

Race and ethnicity information was collected the same way for both the TPPS I and TPPS II questionnaires. In both cases, respondents placed a check mark beside the race or ethnic group that they considered themselves to be. The choices were African American, Asian American, Hispanic/Latino, White, American Indian, and Other. Since Asian American, American Indian, and Other respondents represented only 7.1 percent of the total number of respondents, these respondents were all grouped as “Other.”

In the tables, percentages with a numerator less than 20 are flagged with an asterisk. These percentages may be unstable due to the small numbers and therefore should be interpreted with caution.

Results

Demographics (Table 1)

Demographic characteristics of the study population are presented in Table 1. The study population consisted of 47.5 percent boys, 52.5 percent girls, 49.1 percent middle school students, and 50.9 percent high school students. By racial/ethnic group, 52.4 percent were White, 29.5 percent were African American, 11 percent were Latino, and 7.1 percent were in an Other racial group. Approximately 32 percent of the adolescents who reported all of their grades had low GPAs, 33.5 percent had medium GPAs, and 35 percent had high GPAs.

Table 1: Number of Survey Respondents by Selected Characteristics

	All Surveys		TPPS I Survey	TPPS II Survey
	Number	Percent*	Instrument	Instrument
Total	2,958		412	2,546
Gender				
Boys	1,392	47.5	137	1,255
Girls	1,538	52.5	266	1,272
Unknown	28	–	9	19
School				
Middle	1,452	49.1	216	1,236
High	1,506	50.9	196	1,310
Race/Ethnicity				
White	1,542	52.4	134	1,408
African American	869	29.5	174	695
Latino	325	11.0	67	258
Other	209	7.1	32	177
Unknown	13	–	5	8
GPA				
Low	542	31.5	94	448
Medium	576	33.5	96	480
High	601	35.0	65	536
Unknown	1,239	–	157	1,082

*Excludes unknowns

Sexual Activity (Table 2)

Results of four measures of sexual behavior are reported in Table 2. Overall, 23.3 percent of the adolescents reported that they ever had sexual intercourse, 13.2 percent had experienced sexual intercourse within the past three months, and 2.3 percent reported having gotten a girl pregnant or having been pregnant. Among adolescents who had sexual intercourse within the past 3 months, 66 percent used contraception.

The results for sexual activity vary by demographic groups. The highest rates of ever having had sexual intercourse were observed among boys (24.8%), high school students (30.4%), African Americans (31.3%), and adolescents with low GPAs (31.3%). The highest rates of sexual intercourse within the past three months were observed among girls (13.8%), high school students (17.5%), African Americans (17.3%), and adolescents with low GPAs (19.5%). Girls, adolescents of an Other racial group, high school students, and adolescents with low GPA scores had the highest rates of pregnancy. Among those who had sexual intercourse during the past three months, the groups with the lowest contraceptive use rates were girls (63.7%),

middle school students (53.3%), and adolescents with low GPAs (61.2%).

A notable pattern in these results is that for each of the four indicators of sexual activity, adolescents having the lowest GPAs had the highest level of sexual activity and the lowest contraceptive use.

Parental Communication (Table 3)

Table 3 presents results for four items that measure the level of parental communication. Overall, 36.2 percent of the adolescents had talked with their parents about sex within the past three months, 45.7 percent agreed that if they had a question about sex they would ask their parents, 21.1 percent felt it was hard for their parents to talk about sex, and 12.8 percent felt that their parents did not listen to them.

When asked if they had talked with their parents about sex within the past three months, boys (33.8%), middle school students (34.5%), Latinos (30.1%), and adolescents with low GPAs (32.0%) had the lowest rates. When presented with the statement, “When I have a question about sex, I ask my parents,” high school students (44.3%), African

Table 2: Percentage Responding “Yes” to Sexual Activity Questions Among Demographic Groups

Sexual Activity	Overall		Gender		School		Race/Ethnicity				GPA		
	Total Respondents	% “Yes”	Boys	Girls	Middle	High	White	Af. Am.	Latino	Other	Low	Med.	High
Have you ever had sexual intercourse?	2,928	23.3	24.8	21.9	15.9	30.4	19.7	31.3	15.3	28.2	31.3	23.3	14.9
Have you had sexual intercourse during the past three months?	2,919	13.2	12.7	13.8	8.8	17.5	11.8	17.3	7.8	15.1	19.5	14.0	7.9
Have you ever gotten pregnant or gotten a girl pregnant?	2,921	2.3	2.1	2.4	1.7	2.8	1.9	2.5	2.5*	3.9*	3.2*	2.4*	1.2*
Among those who had sexual intercourse during the past three months: Did you always use contraception?	376	66.0	68.2	63.7	53.3	72.1	65.0	65.3	64.0*	75.9	61.2	63.8	71.7

*Percentage is based on a numerator less than 20.

Table 3: Percentage Responding Yes/True to Parental Communication Items Among Demographic Groups

Parental Communication	Overall		Gender		School		Race/Ethnicity				GPA		
	Total Respondents	% "Yes"	Boys	Girls	Middle	High	White	Af. Am.	Latino	Other	Low	Med.	High
In the past 3 months, have you talked with your parents about sex?	2,914	36.2	33.8	38.5	34.5	37.8	39.8	32.5	30.1	34.3	32.0	34.8	41.6
When I have a question about sex, I ask my parents.	2,932	45.7	45.8	45.8	47.1	44.3	48.6	40.3	44.7	48.1	40.3	47.7	49.1
My parents find it hard to talk to me about sex.	2,537	21.1	20.4	21.8	23.3	19.0	18.7	23.7	27.7	19.2	28.1	22.3	19.1
My parents do not listen to me.	2,920	12.8	10.8	14.5	12.7	13.0	10.2	16.8	14.2	12.4	12.4	14.1	11.1

Americans (40.3%), and adolescents with low GPAs (40.3%) had the lowest rates of agreement.

The groups with the highest percentages saying that their parents find it hard to talk to them about sex were middle school students (23.3%), Latinos (27.7%), and adolescents with low GPAs (28.1%). Adolescents were also asked whether or not they agreed with the statement, “My parents do not listen to me.” Girls (14.5%) agreed with the statement at a higher rate than boys (10.8%), and African Americans had the highest level of agreement (16.8%) followed by Latinos (14.2%), Other races (12.4%), and Whites (10.2%). Adolescents with medium GPAs had the highest rate of agreement (14.1%) among the GPA groups.

Reproductive Health (Table 4)

Table 4 presents responses to five items that measure knowledge about birth control. Overall, 86.2 percent correctly agreed that the only 100 percent effective way to prevent pregnancy and catching a sexually transmitted disease is not to have sex. Approximately 18 percent incorrectly answered “true” to the statement, “Withdrawal is an effective method of birth control.” Approximately 56 percent correctly agreed that a highly reliable method of avoiding pregnancy and STDs is to use a condom and spermicide. Nearly 90 percent of teens correctly

agreed with the statement, “A girl can get pregnant the first time she has sex.”

Boys, Latinos, and adolescents with low GPAs had the lowest percentages of correct answers about birth control. Contrary to what one might expect to see, high school students did not have higher percentages of correct responses than middle school students for every question. High school students had a lower percentage of correct responses for two of the four questions.

Birth Control (Table 5)

Four items that measure attitudes about birth control are presented in Table 5. Approximately 9 percent of adolescents agreed with the statement, “If a girl has sex only once in a while, she really doesn’t need birth control.” When presented with the statement, “Using birth control is morally wrong,” 7.9 percent of the adolescents agreed. Approximately 13 percent of the adolescents felt birth control is too expensive to buy and 9.4 percent felt it is too much of a hassle to use.

Since each of these four items were only included on the TPPS I survey, the numerators for many of the response rates for specific demographic groups were very low. Therefore, rates by demographic groups could not be presented.

Table 4: Percentage Responding “True” to Statements about Reproductive Health Among Demographic Groups

Reproductive Health	Overall		Gender		School		Race/Ethnicity				GPA		
	Total Respondents	% “True”	Boys	Girls	Middle	High	White	Af. Am.	Latino	Other	Low	Med.	High
The only 100% effective way to prevent pregnancy and catching a sexually transmitted disease is not to have sex.	2,940	86.2	82.9	89.2	81.2	90.9	90.2	85.6	72.2	80.2	83.4	87.5	93.7
Withdrawal is an effective method of birth control.	2,902	17.8	18.9	16.8	16.6	19.0	16.2	16.4	28.4	20.0	19.2	15.0	11.7
A highly reliable method of avoiding pregnancy and sexually transmitted infections is to use a condom and spermicide.	2,936	55.7	59.0	52.7	56.2	55.1	56.2	59.0	44.6	55.1	53.5	51.5	49.3
A girl can get pregnant the first time she has sex.	2,539	89.5	86.5	92.7	85.2	93.6	93.7	85.8	80.7	85.3	85.9	94.4	94.2

Table 5: Percentage Responding “True” to Statements about Birth Control

Birth Control	Overall	
	Total Respondents	% “True”
If a girl has sex only once in a while, she really doesn’t need birth control.	410	8.8
Using birth control is morally wrong.	403	7.9
In general, birth control is too expensive to buy.	406	12.8
In general, birth control is too much of a hassle to use.	403	9.4

Sexually Transmitted Diseases (Table 6)

Adolescents were presented with several true/false statements to assess their level of knowledge about sexually transmitted diseases. Only 3.7 percent of the adolescents incorrectly agreed with the statement, “Sexually transmitted infections (STDs) usually go away on their own.” Thirteen percent of the adolescents incorrectly agreed with the statement, “Genital herpes can be cured with an antibiotic.” Approximately three-quarters (76%) of adolescents correctly agreed that it is possible to have more than one STD at a time. Almost 20 percent of the adolescents mistakenly agreed with the statement, “You can’t get AIDS from someone who has only had sex a few times.”

Level of knowledge about STDs varies little by gender. However, there were noticeable differences among middle and high school students. High school students had a higher percentage of correct responses for each item. Even so, high school students did not score very much higher than middle school students on two of the four items.

Knowledge of sexually transmitted diseases also varied by racial group and GPA. African Americans had the highest percentages of incorrect responses on three of four items. Latinos had the lowest percentage of correct responses when presented with the statement, “It is possible to have more than one sexually transmitted infection at a time.” For most items, adolescents with the lowest GPAs had the least knowledge about STDs.

Table 6: Percentage Responding “True” to Statements about Sexually Transmitted Diseases Among Demographic Groups

Sexually Transmitted Diseases	Overall		Gender		School		Race/Ethnicity				GPA		
	Total Respondents	% “True”	Boys	Girls	Middle	High	White	Af. Am.	Latino	Other	Low	Med.	High
Sexually transmitted infections (STDs) usually go away on their own.	2,947	3.7	4.2	3.3	5.1	2.5	2.4	6.8	2.2*	3.4*	2.8*	4.2	2.0*
Genital herpes can be cured with an antibiotic.	2,534	13.1	14.3	12.0	15.1	11.3	9.8	20.9	13.8	8.0*	13.9	13.4	9.0
It is possible to have more than one sexually transmitted infection (STD) at one time.	2,942	76.0	76.7	75.6	67.3	84.4	82.8	72.8	58.8	67.0	70.2	78.6	83.5
You can’t get AIDS from someone who has only had sex a few times.	2,527	19.8	21.1	18.2	20.5	19.1	17.3	24.6	22.9	17.5	22.4	20.3	17.2

*Percentage is based on a numerator less than 20.

Sexuality and Relationships (Table 7)

Table 7 presents six items that measure attitudes about sexuality. Overall, 10.3 percent of adolescents agreed they would be less lonely if they had sex and 13.3 percent agreed that if two people are in love then they should have sex. Ninety percent of adolescents felt that people can show each other they love one another without having sex. Approximately 63 percent agreed that it is normal to day-dream and think about sex. Eight percent of adolescents felt if they had sexual intercourse, their friends would respect them more. Approximately 87 percent of adolescents agreed with the statement, “It is okay to be my age and not to have had sex.”

Although differences can be observed across many of the demographic groups, some of the most striking differences in attitudes about sex were observed between boys and girls. Although boys and girls had about the same level of agreement with the statement on sex and loneliness, there were larger differences on other items. A larger percentage of boys (17.7%) than girls (9.2%) felt that if two people are in love, then they should have sex. For the statement, “If I had sexual intercourse, my friends would respect me more,” 13 percent of boys agreed compared to only about 4 percent of girls.

Table 7: Percentage Responding “True” to Statements about Sexuality and Relationships Among Demographic Groups

Sexuality and Relationships	Overall		Gender		School		Race/Ethnicity				GPA		
	Total Respondents	% “True”	Boys	Girls	Middle	High	White	Af. Am.	Latino	Other	Low	Med.	High
If I had sexual intercourse, I would feel less lonely.	406	10.3	11.9*	9.2	10.9	9.8*	9.1*	13.5	6.1*	6.3*	9.7*	9.4*	6.4*
If two people are in love, then they should have sex.	2,929	13.3	17.7	9.2	15.7	10.9	11.5	15.5	14.7	15.8	17.8	11.6	7.6
People can show each other they love one another without having sex.	2,935	90.3	88.5	92.3	88.6	92.0	93.5	89.0	80.9	87.5	88.1	90.4	93.8
It is normal to day-dream and think about sex.	2,931	63.2	68.4	58.8	59.5	66.8	67.3	64.4	48.4	53.4	64.6	66.1	64.6
If I had sexual intercourse, my friends would respect me more.	2,936	8.2	13.2	3.6	9.5	7.1	7.8	11.0	4.7*	5.8*	9.5	9.4	6.5
It is ok to be my age and not to have had sex.	2,927	87.3	84.7	90.0	84.0	90.5	92.3	85.8	69.6	85.0	86.1	88.8	93.8

*Percentage is based on a numerator less than 20.

Table 8: Percentage Responding “True” to Selected Items by Sexual Activity

Item	Boys who ever had sex	Boys who did not ever have sex	Girls who ever had sex	Girls who did not ever have sex
When I have a question about sex, I ask my parents.	41.5	47.3	36.8	48.0
My parents find it hard to talk to me about sex.	24.1	19.4	27.5	20.3
My parents do not listen to me.	15.5	9.2	17.2	13.8
Having sex if you are not married is wrong.	40.5*	41.8	29.6	63.7
Using birth control is morally wrong.	8.6*	6.1*	12.7*	6.4*

*Percentage is based on a numerator less than 20.

Cross-tabulations of Selected Questions by Sexual Activity (Table 8)

Three indicators of parental communication, one question about sex outside of marriage, and one question about birth control were cross-tabulated with sexual activity by gender in Table 8. In general, both boys and girls who had ever had sexual intercourse indicated they had less communication with their parents. Also, for each parental communication item, girls who ever had sex indicated less parental communication compared to boys who had ever had sex. For instance, whereas 24.1 percent of boys who ever had sex agreed that their parents find it hard to talk to them about sex, 27.5 percent of girls who ever had sex agreed.

Moral attitude about sexual intercourse is associated with sexual behavior for girls more than for boys. Approximately 64 percent of girls who did not ever have sex agreed that having sex if you are not married is morally wrong, compared to 30 percent of girls who ever had sex who agreed with this statement. For boys, the percentage agreeing with this statement was about the same for those who ever had sex and those who had not ever had sex (41%).

Discussion

The findings of this study show that middle and high school students with higher GPAs are more likely to postpone sexual intercourse and are more likely to use contraception when they are sexually active. Findings also suggest that girls are less likely to have sexual intercourse if they feel they can talk with their parents about sex and if they feel sexual intercourse outside of marriage is morally wrong. Level of parental communication and feelings about the morality of sexual intercourse outside of marriage were not found to be associated with sexual activity among boys.

Overall, boys, African Americans, high school students, and adolescents with low GPAs reported the highest rates of sexual activity. Girls, adolescents of an Other racial group, high school students, and adolescents with low GPAs reported the highest rates of getting a girl pregnant or becoming pregnant.

In this study, we did not do tests of the statistical significance of the differences between percentages. Therefore, the observed differences should be considered as only suggestive of true differences.

The results for Latinos should be interpreted with caution. The exact literal translation of the questionnaires from English to Spanish could have caused confusion for some of the questions for Spanish-speaking Latinos.

The findings of this study may not be generalized to the entire North Carolina population of adolescents. When sexual activity for the high school students in this study was compared to similar measures from the North Carolina Youth Risk Behavior Survey (YRBS),³ differences between the populations were found. In the present study, 30.4 percent of high school students reported ever having sexual intercourse compared to 52.5 percent from the 2003 YRBS. When asked whether you have ever been pregnant or gotten someone pregnant, 2.8 percent of the high school students in the present study said yes, compared to 6.6 percent from the YRBS. In an effort to explain these differences between the populations, we looked at the distribution of students by grade level. Approximately 65 percent of the high school students in the present study consisted of 9th graders, compared to only 32 percent in the YRBS. Most of the Adolescent Pregnancy Prevention programs tend to work with middle school and younger high school students, trying to reach adolescents before they become sexually active. This largely explains the disproportionate number of 9th graders in the present study. So our sample of high school students is much younger than the overall state average. Nevertheless, when the percentage of students who ever had sex was examined for each grade level, the current study had lower rates of ever having sex for each grade level compared to the YRBS. Differing outcomes between YRBS and the present study may be a result of the lack of random sampling in the present study.

Even if the results of the present study cannot be generalized to all North Carolina adolescents, the associations found in this study suggest which groups of adolescents should be targeted for pregnancy prevention. Students with lower GPAs, African Americans, Latinos, and students having poor parental communication are at greatest risk of pregnancy.

Notes

1. In 2000, the teen birth rate for North Carolina was 59.9 births per 1,000 females ages 15-19, compared to 48.5 for the United States. For the same year, only 12 states had higher teen pregnancy rates. See Table 4, NC Health Statistics Pocket Guide 2001 at <http://www.schs.state.nc.us/SCHS/data/pocketguide/2001/>
2. The Adolescent Pregnancy Prevention Program is administered by the Women's and Children's Health Section, Division of Public Health, North Carolina Department of Health and Human services. For more information visit the APPP website at http://wch.dhhs.state.nc.us/adolescent_pregnancy_program.htm.
3. The Youth Risk Behavior Survey is administered by the North Carolina Department of Public Instruction. Reports for 2003 may be viewed at www.ncpublicschools.org or www.nchealthyschools.org.

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State of North Carolina
Michael F. Easley, Governor

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State Center for Health Statistics
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Department of Health and Human Services
State Center for Health Statistics
1908 Mail Service Center
Raleigh, NC 27699-1908
(919) 733-4728