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# Teen Home Pregnancy Test Takers: More Worried or More Wishful?

Lisa Kelly, PA; Jeanelle Sheeder, BA; and Catherine Stevens-Simon, MD

**ABSTRACT.** *Objective.* To test the hypothesis that teenagers who have taken home pregnancy tests are more ambivalent about remaining nonpregnant than those who have not and, for this reason, use contraceptives less consistently.

*Methods.* A racially diverse group of 340 inadequately contracepting, nulligravida teens, 94 (28%) of whom had taken a home pregnancy test, was studied. At enrollment, participants completed a self-administered questionnaire, were counseled about contraceptive options, and were given the opportunity to initiate their method of choice. The enrollment tool assessed traditional teen-pregnancy risk factors, expectations about the effects of childbearing, common deterrents to contraceptive use, the desirability of remaining nonpregnant, and contraceptive use and plans.

*Results.* Home pregnancy test takers were more apt to be unsure that they wanted to remain nonpregnant (relative risk [RR]:1.3; 95% confidence interval [CI]:1.1–1.6), principally because they were more likely to lack negative expectations about the effects of childbearing on their lives (odds ratio: 2.2; 95% CI = 1.2–4.0). Although no more likely to perceive deterrents to contraceptive use, pregnancy-test-kit users were more apt to have had unprotected sexual intercourse in the past (RR:1.3; 95% CI:1.1–1.5) and to plan to do so in the future (RR:1.7; 95% CI:1.1–3.3). Group differences in the desire to remain nonpregnant accounted for differences in contraceptive behavior and plans.

*Conclusion.* Home pregnancy test taking should be regarded as a red flag by those who care for adolescents; although they are as capable of using contraceptives as their peers, test takers are less apt to do so because they expect less negative consequences from childbearing and, for this reason, may benefit more from discussing childbearing expectations than contraceptive options. *Pediatrics* 2004;113:581–584; *home pregnancy testing, teen pregnancy, contraception, pregnancy planning.*

ABBREVIATIONS. SD, standard deviation; RR, relative risk; CI, confidence interval; OR, odds ratio.

Home pregnancy test kits are among the most widely used over-the-counter medical tests in the United States, and nearly a third of sexually active teenage girls are thought to have used one.<sup>1–3</sup> The popularity of these products is attributed

to their convenience, confidentiality, low cost, accuracy, and speed.<sup>1,2</sup> Growth in this market has raised concern because only a minority of teens seek contraceptives (12%) or confirmatory testing (25%) after obtaining a negative result at home, and teens who do home pregnancy tests use contraceptives less consistently than those who do not.<sup>3</sup> This could be because inconsistent contraceptive use fosters legitimate worries about conception (ie, reverse causality), because in the absence of adult supervision the lessons teenagers learn during these unique teachable moments are counterproductive, or because during adolescence home pregnancy test taking and inconsistent contraceptive use both reflect ambivalence about the desirability of remaining nonpregnant.

Conventional adult wisdom predicts that the feedback teenagers obtain from a negative pregnancy test result will increase perceived susceptibility to conception and the motivation to change pregnancy risk-taking behavior. However, studies show that teenagers who have tested negative for pregnancy are at higher risk for conception than those who have not, because most remain sexually active and rarely use contraceptives consistently enough to avoid conceiving by default.<sup>4,5</sup> It may be that their behavior does not coincide with adult expectations because the objective feedback obtained from a negative pregnancy test result is easily misinterpreted as evidence that ineffective contraceptive methods, such as withdrawal or rhythm, are adequate or that one or both partners is infertile.<sup>6,7</sup> Because of the availability and popularity of home pregnancy test kits, many at-risk teens may not receive the anticipatory guidance they need to dispel these misconceptions that virtually block the conversion of birth-control knowledge to successful practice. However, this study tests the alternative hypothesis that teenagers who have taken home pregnancy tests are more ambivalent about remaining nonpregnant and, for this reason, use contraceptives less consistently than those who have not.

## METHODS

### Study Population

The study subjects, a group of 340 racially and ethnically diverse (white: 19%; black: 25%; Hispanic: 55%; other: 1%) 10.8- to 19.6-year-olds, (mean  $\pm$  standard deviation [SD]:16.2  $\pm$  1.6 years) were recruited consecutively when they sought pregnancy (28.8%) or sexually transmitted disease (13.5%) testing, contraceptives (25.2%), or general health care (32.5%) at 3 urban teen clinics that serve a predominately medically indigent population in the southwestern United States. Female clients were asked to participate if they were sexually active, <20 years old, nulligravida, at high risk for conception because they had used no or an unreliable method of contraception (ie, withdrawal, douching, and/or rhythm) at

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least 1 of the last 4 times they had heterosexual vaginal intercourse, and tested negative for pregnancy. Almost everyone (97.4%) who was asked to participate agreed to do so, and subsequent analyses revealed no significant sociodemographic differences between participants and nonparticipants. Most planned to parent if pregnant (86.6%), had been sexually active for >6 months (89.6%; mean  $\pm$  SD: 14.3  $\pm$  1.5 years of age at first sexual intercourse), had engaged in socially proscribed behaviors (81.2% had abused illicit drugs or alcohol and/or been truant, runaways, or jailed), and, although many had also already dropped out of or were failing in school (61.8%), only a minority (26.2%) did not aspire to graduate from high school and pursue careers in addition to motherhood. The study was approved by the University of Colorado Institutional Review Board, and all participants signed a consent form at enrollment.

## Study Design

At enrollment, participants completed a self-administered questionnaire, were individually counseled about all potential contraceptive methods by a trained research assistant, and were given the opportunity to initiate their method of choice, unless the method was unavailable or the risk of an undiagnosed pregnancy prohibited immediate initiation, in which case a follow-up visit was scheduled 2 to 3 weeks after enrollment. The assessment instrument was developed at a fifth-grade reading level for this study and included traditional sociodemographic and behavioral risk factors for teen pregnancy, expectations about the effects of childbearing, common deterrents to contraceptive use, the desirability of remaining nonpregnant, past contraceptive use, and future contraceptive plans. The inclusion of questionnaire items was guided first by considerations of face validity. The questionnaire then was refined through pretesting on 22 adolescent females drawn randomly from the target population and with reliability and principle axis factor analyses (oblique rotation, SPSS, version 11.0, Chicago, IL). An item was removed if the teens deemed it irrelevant, unintelligible, or ambiguous or if the reliability coefficient for the scale increased by >0.02 when it was deleted or its component loading was complex or <0.4.<sup>8,9</sup> Reliability coefficients exceeding 0.70 were considered sufficiently robust for the planned, group-level comparisons, and a stable factor pattern was defined as  $\geq 4$  loadings >0.6 or  $\geq 3$  loadings >0.8.<sup>8,9</sup> Because we had no a priori basis for weighting items, they were all assigned equal value, and scale scores were obtained by averaging item scores. Although the measures represented continuums of risk, to simplify application in clinical situations where cutoffs are needed to define low- and high-risk states, the scale scores were subsequently converted to dichotomous risk factors by performing median splits unless there was an empiric basis for partitioning the continuous measure.

## Measures

### *Traditional Teen-Pregnancy Risk Factors*

The questionnaire covered all factors identified a priori by an exhaustive review of the relevant literature as the most potent predictors of inconsistent contraceptive use and conception during adolescence.<sup>4-7,10-15</sup> Well-validated scales were used to measure broad constructs such as depression,<sup>16</sup> self-esteem,<sup>17</sup> and family support,<sup>18</sup> but poverty was omitted because most participants relied on publicly subsidized health care, and other measures of socioeconomic status could not be computed reliably.<sup>15</sup> These data were combined to create 10 generic and 12 pregnancy-specific dichotomous risk factors and an aggregate measure that assessed their additive effect by tallying the total number present. We defined "high aggregate social and environmental risk" as being present if the total number of risk factors exceeded 10, which corresponded to 1 SD above the median. The generic factors were minority race/ethnicity, socially deviant behavior, no religious affiliation, school failure, depression, no future plans, childhood victimization, poor family support, not living with a biological parent, and poor self-esteem. The pregnancy-specific factors were teen-pregnancy normative, deep romantic relationship, boyfriend wants an infant, no contraception at first sexual intercourse, >2 years since first sexual intercourse, <6 months since first sexual intercourse, first sexual intercourse at <14 years, coercive sexual relationship, menarche at <12 years, older partner, seeking pregnancy testing, and religion proscribes teen sex.

### *Childbearing Expectations*

The probable effect of childbearing on future plans, self-esteem, autonomy, boyfriend relations, and the intrinsic need to have an infant and the subjective value placed on these anticipated changes were assessed with 5 psychometrically robust (Cronbach  $\alpha$ : >.7) subscales (response range: 1-3), on which high values represented more-positive expectations. These subscales were subsequently combined, because a principle axis factor analysis indicates that a single, stable factor was present. This composite childbearing expectations index was highly reliable (Cronbach  $\alpha$ : .87). The median, 1.7, fell just below the midpoint, implying that most respondents were ambivalent and did not feel that pregnancy would have a clearly positive or negative effect on these aspects of their lives. The scale dichotomized at the median.

### *Desire to Remain Nonpregnant*

Pretested questions<sup>19-22</sup> were used to create a highly reliable, (Cronbach  $\alpha$  = .86), stable, single-factor, 6-item scale on which low values represented a stronger commitment to remaining nonpregnant (response range: 1-3). Although only 10 (3%) teens gave responses indicative of actually wanting to become pregnant, the median (1.5) fell just below the midpoint, suggesting that most respondents were ambivalent about the desirability of remaining nonpregnant. Because a strong commitment to remaining nonpregnant is a more-potent predictor of subsequent pregnancy status than the desire to conceive,<sup>19,23</sup> those scoring <1.2 (no positive response and at most 1 ambivalent response) were classified as desiring to remain nonpregnant.

### *Deterrents to the Use of Contraception*

Enrollment counseling ensured that participants had knowledge about and access to contraception. However, unsafe sexual practices persist despite knowledge, access, and a stated wish to remain nonpregnant. This could be due to fear of contraceptive side effects, domineering partners who discourage contraceptive use, unwillingness to plan for sexual intercourse, and/or the belief that conception is unlikely to occur.<sup>6,7,10-13,24-26</sup> The impact of these 4 common deterrents was assessed individually with psychometrically robust (Cronbach  $\alpha$ : >.7), 5-item Likert scales (response range: 1-4), on which high values represented more deterrence. Scores were skewed (medians fluctuated well below the midpoint, around the value 1.4), implying that most respondents did not perceive major deterrents to using contraceptives. The scales were dichotomized at their medians.

### *Contraceptive Use*

Two measures were used: 1) use of no or an unreliable method of contraception (ie, withdrawal, douching, and/or rhythm) at last intercourse (yes/no) and 2) future contraceptive plans, with methods ranked on a 3-point scale according to the estimated proportion of teen users conceiving accidentally per year of typical use (ie, abstinence, rhythm, and withdrawal:  $\geq 10\%$ ; condoms, foam, and diaphragms:  $\geq 5\%$ ; oral, dermal, injectable, subdermal, and intrauterine methods: <3%).<sup>7,26</sup> This continuous index was collapsed into 2 overlapping, dichotomous variables: no contraception (risk of conception  $\geq 10\%$ ) and poor contraception (risk of conception  $\geq 3\%$ ). Sexual and contraceptive behavior was self-reported and not otherwise validated.

### *Data Analysis*

Univariate associations between subject characteristics and home pregnancy testing group were assessed by computing relative risks (RRs) and their 95% confidence intervals (CIs). All variables that were statistically ( $P < .05$ ) related to home pregnancy testing were included in the forward, stepwise logistic regression analyses used to test the study hypotheses. Variables entered the models on the basis of the strength of their association with home pregnancy testing or the contraceptive decision under study. Adjusted odds ratios (ORs) and their 95% CIs were calculated from the logistic coefficients and standard errors for each variable. The statistical test for the logistic regression model was the  $\chi^2$  likelihood ratio. All tests for statistical significance were 2-sided, and all analyses were performed with SPSS version 11.

**TABLE 1.** Context in Which Sexual Decisions Were Made

Factor	Did Home Pregnancy Test		RR (95% CI)	OR (95% CI) Adjusted*
	Yes (n = 94), %	No (n = 246), %		
Not living with parent	38.3	21.2	1.8 (1.3–2.6)	2.0 (1.1–3.4)
High aggregate social risk	48.9	24.8	2.0 (1.5–2.6)	2.0 (1.2–3.5)
Sexually active >2 years	42.6	30.9	1.4 (1.1–2.0)	
Boyfriend wants pregnancy	83.9	63.5	1.3 (1.2–1.5)	
Lacks negative pregnancy expectations	63.8	41.5	1.5 (1.3–1.9)	2.2 (1.2–4.0)
Not wanting to stay nonpregnant	62.8	46.8	1.3 (1.1–1.6)	

\* Stepwise logistic regression that included all the variables listed above; model  $\chi^2$ : 30.7;  $P < .0001$ .

## RESULTS

Of the 340 study participants, 94 (27.6%) had taken a home pregnancy test (range: 1–10). The majority (61.6%) had only done so once, but home testers were more likely to have scheduled the index clinic visit to obtain a pregnancy test (43.6%, compared with 23.2%; RR: 1.9; 95% CI: 1.4–2.6). Although the bivariate analyses failed to uncover any significant group differences in age, race, or the depth and duration of ongoing romantic relationships, the data presented in Table 1 provide empiric support for the hypothesis that the psychological context in which teenagers who have taken home pregnancy tests make decisions about sexual activity puts them at higher risk for erratic contraceptive use and conception than those who have not. Specifically, home test takers were more apt to not be living with a biological parent, be at high aggregate social and environmental risk for conception, to have been sexually active for at least 2 years, to think that a boyfriend wanted them to be pregnant, to lack negative expectations about the effects of adolescent childbearing on their lives, and (as hypothesized) to be ambivalent about remaining nonpregnant. Subsequently, a stepwise logistic regression analysis (Table 1, last column) revealed that this difference in the childbearing attitudes of teenagers who had and had not taken a home pregnancy test was explained entirely by differences in their expectations about the effects of childbearing and exposure to social and environmental risk factors for teen pregnancy.

Next, we compared the contraceptive decisions teenagers who had and had not taken home pregnancy tests made. Although our analyses revealed no significant group differences regarding deterrents to contraceptive use and approximately half (50.9%) of

the teenagers in each group had used no or an ineffective method of contraception the first time they had sexual intercourse, the data presented in Table 2 show that those who had taken home pregnancy tests were less apt to have used contraception at last intercourse (this was true of those who had used contraception the first time they had sexual intercourse, 74.4% compared with 43.6%; RR: 1.7; 95% CI: 1.2–2.2) and more apt to refuse contraceptives during the index clinic visit. Moreover, in line with the study hypothesis, stepwise logistic regression analyses (Table 2, last column) subsequently revealed that these relationships between home test taking and contraceptive decision-making reflected group differences in ambivalence about remaining nonpregnant. Teens who did 1 home pregnancy test did not differ from those who did many.

## DISCUSSION

Our finding that more than one quarter of this teen clinic population had ever used a home pregnancy test kit and that those who had done so had used contraceptives less consistently than those who had not is consistent with the results of prior studies.<sup>1–3</sup> However, these statistics take on new clinical importance in light of our finding that this often-covert activity is an ease-to-assess proxy for a constellation of environmental factors and personal characteristics and attitudes (Table 1), which collectively suggest that teenagers who use home pregnancy test kits are as capable of using contraceptives as those who do not but are less apt to do so principally because they expect less negative consequences from childbearing during adolescence and, for this reason, have more-ambivalent feelings about the desirability of remaining nonpregnant. This important new finding that

**TABLE 2.** Contraceptive Decisions

Factor	Did Home Pregnancy Test		RR (95% CI)	OR (95% CI) Adjusted*
	Yes (n = 94), %	No (n = 246), %		
No contraception last intercourse	78.0	59.4	1.3 (1.1–1.5)	1.8 (0.9–3.3)†
Refused contraceptives at enrollment	23.4	14.2	1.6 (1.1–2.3)	1.5 (0.8–2.8)‡
Refused prescription at enrollment	34.0	21.5	1.7 (1.1–3.3)	1.5 (0.9–2.6)§

\* Stepwise logistic regression analyses adjusting for all variables shown in Table 1.

† Variables in model included not wanting to stay nonpregnant (OR: 3.3; 95% CI: 2.0–5.5) and high aggregate social risk (OR: 2.9; 95% CI: 1.7–5.5) (model  $\chi^2$ : 53.6;  $P < .0001$ ).

‡ Variables in model included not wanting to stay nonpregnant (OR: 4.6; 95% CI: 2.3–9.4) (model  $\chi^2$ : 25.3;  $P < .0001$ ).

§ Variables in model included not wanting to stay nonpregnant (OR: 2.7; 95% CI: 1.6–4.7) and being sexually active >2 years (OR: 1.8; 95% CI: 1.1–3.1) (model  $\chi^2$ : 25.7;  $P < .0001$ ).

home pregnancy test taking is a proxy for a potentially alterable set of beliefs about the consequences of adolescent childbearing, the diagnosis and treatment of which might bolster contraceptive vigilance, is relevant to clinical practice, because it implies that teenagers who use home pregnancy test kits might benefit more from counseling aimed at altering their childbearing expectations than from traditional discussions of contraceptive options. Within this context, responses to the assessment tool we developed could help clinicians provide the immediate personalized counseling needed to alter beliefs about the lack of benefit associated with postponing childbearing beyond adolescence, thereby preventing the teen pregnancies that are conceived by default when the costs of conception seem no more onerous than those of daily contraceptive use.<sup>27,28</sup>

Although the broad, community-based sampling frame that drew participants from a variety of settings increases the external validity of our results for socioeconomically constrained populations, because most study participants were medically indigent and resided in communities in which teen pregnancy is endemic, care must be taken in generalizing the findings from this study to more-affluent teens who are at lower sociodemographic risk for conception, have more-negative expectations about the effects of childbearing on their lives, and are less ambivalent about trying to remain nonpregnant.

The results of previous studies of the childbearing attitudes of teen clinic patrons are unanimous and, similar to those presented here, indicate that although only a tiny minority of teenagers actually state that they want to become pregnant, many of those who fail to use readily available contraceptives consistently enough to avoid conceiving by default have ambivalent feelings about the desirability of remaining nonpregnant.<sup>13,19–23,28–30</sup> Given the nascent stage of adolescent childbearing expectancy research, it is difficult to compare our findings to those of prior investigators and to judge the significance of negative expectations for preventing teen pregnancy. However, because the findings of Unger et al<sup>30</sup> that female high school students who held positive expectations about childbearing were more likely to have had unprotected sexual intercourse is consistent with our own, it may be prudent for those who care for sexually active teenagers to regard a history of home pregnancy test taking as a red flag.

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