

# Adolescent Perceptions of Maternal Approval of Birth Control and Sexual Risk Behavior

## ABSTRACT

**Objectives.** This study examined the relationship between adolescent perceptions of maternal approval of the use of birth control and sexual outcomes across a 12-month period.

**Methods.** A subsample of the Longitudinal Study of Adolescent Health database was used in the context of a prospective design. Approximately 10 000 students in grades 7 to 11 were interviewed twice, 1 year apart.

**Results.** Adolescent perceptions of maternal approval of birth control were associated with an increased likelihood of sexual intercourse over the next 12 months for virgins at wave 1. The perceptions also were related to an increase in birth control use but showed an ambiguous relation to the probability of pregnancy. High relationship satisfaction between adolescents and mothers was associated with a higher probability of birth control use and a lower probability of both sexual intercourse and pregnancy.

**Conclusions.** The results suggest that perceived parental approval of birth control may increase the probability of sexual activity in some adolescents. "Safer sex" messages must be conveyed by parents with thought and care. (*Am J Public Health*. 2000;90:1426–1430)

James Jaccard, PhD, and Patricia J. Dittus, PhD

Recently, interest in the role of parents in influencing the sexual behavior of adolescents has increased.<sup>1,2</sup> The program of research by Jaccard and Dittus,<sup>3–6</sup> for example, found that adolescents' perceptions of the extent to which their mothers disapprove of their engaging in sexual intercourse are associated with a lower probability of sexual intercourse and pregnancy. Many parents adopt an abstinence orientation with respect to their adolescents but also discuss birth control with them to ensure that they will use protection if they decide to engage in sexual intercourse. Some parents are reluctant to adopt such an approach out of fear that conveying approval of birth control may encourage adolescents to engage in sexual intercourse.

The issue of "abstinence only" vs "safer sex" approaches to sex education has received considerable attention in school-based sex education programs.<sup>7,8</sup> Kirby and Coyle<sup>7</sup> conducted a review and concluded that no strong evidence indicates that including a safer sex component increases sexual activity. Although many sex education programs do not have effects on sexual risk behavior one way or the other, some programs have shown short-term beneficial effects by reducing unprotected intercourse. These programs have tended to use a safer sex orientation.<sup>7</sup>

The current study examined the relation of adolescent perceptions of parental approval of birth control to adolescent sexual behavior. Family contexts are distinct from school contexts, and it is unknown how parental orientations toward birth control affect the sexual activity of adolescents. Jaccard and colleagues<sup>4</sup> found that higher levels of maternal discussions about birth control were associated with a higher probability of sexual intercourse. That research used a small, homogeneous sample (inner-city African Americans), was cross-sectional, and was subject to several alternative interpretations. The current prospectively designed study further explored this issue in a national sample of adolescents.

Associations between perceptions of approval of birth control use and sexual activity

do not confirm a causal link between these variables, because of potential alternative explanations. One such explanation is that the association between parental birth control approval and increased sexual activity is spurious because of the common cause of age: as adolescents grow older, their parents become more approving of their child's using birth control. Older adolescents also are more likely to engage in sexual intercourse for reasons that may be unrelated to parental orientations. This explanation was addressed in the current study by holding age constant within the underlying statistical model.

A second alternative explanation is that when parents learn that their child has engaged in sex, they decide that the child needs to be prepared for safer sex, so they convey approval of the use of birth control to their child. Rather than the parental attitude influencing adolescent sexual behavior, the causal dynamics are reversed. This explanation can be addressed by focusing analyses only on parents who do not believe that their adolescents have engaged in sexual intercourse. These parents cannot adjust their attitudes in response to learning that their children have engaged in sexual intercourse, because they do not think that the adolescents have done so.

A variant of this alternative explanation is that parents become more approving of birth control if they believe that their adolescents are about to engage in sexual activity. For example, if the adolescent is physically mature or is in a steady relationship, the parent may infer that the adolescent is about to become

The authors are with the Department of Psychology, University at Albany, State University of New York, Albany.

Requests for reprints should be sent to James Jaccard, PhD, or Patricia J. Dittus, PhD, Department of Psychology, University at Albany, State University of New York, Albany, NY 12222 (e-mail: [jjj20@csc.albany.edu](mailto:jjj20@csc.albany.edu) [J.J.] or [pd329@csc.albany.edu](mailto:pd329@csc.albany.edu) [P.J.D.]).

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sexually active; the parent may therefore decide to express approval of birth control use. The parental attitude reflects an “adjustment” to impending sexual activity by the adolescent. The current study addressed this possibility by controlling for physical development and parental perceptions of whether the adolescent is in a steady relationship.

A final alternative explanation is that perceived parental birth control approval merely reflects the parent’s attitude toward engaging in sex generally. Parents who are more approving of sexual activity are more likely to approve birth control use, and any association between birth control attitudes and sexual activity may be the result of parental approval of sex generally. This explanation was addressed by including perceptions of parental attitudes toward sex as a covariate in the statistical model.

If birth control use removes incentives to refrain from sex because of pregnancy and disease considerations, adolescents who have internalized other reasons for not engaging in sexual intercourse may abstain from sex even when parents convey birth control approval. Miller<sup>7</sup> suggested that a high-quality relationship with a parent encourages a child to internalize the values espoused by the parent, including values that encourage abstinence, which may, in turn, mitigate the effect of perceived approval of birth control on sexual activity. This hypothesis also was evaluated.

## Methods

### Respondents and Procedures

The data were from the Longitudinal Study of Adolescent Health, a 2-wave, school-based study of more than 20 000 adolescents in grades 7 through 12.<sup>9,10</sup> Wave 1 interviews occurred in the adolescent’s home, with responses recorded on laptop computers. Students in grades 7 through 11 also were interviewed 1 year later. The current analyses focused on never married adolescents in grades 7 through 11 who completed both interviews and whose mother was a resident of the household. Mothers also completed an interview at wave 1.

### Measures

**Behavioral outcomes.** Three behavioral outcomes were measured for behavior between waves 1 and 2: whether the adolescent (1) had engaged in sexual intercourse since the first interview, (2) had used birth control during his or her most recent intercourse (even if the most recent intercourse was the first intercourse), and (3) had become pregnant since the first interview (asked only of females).

**Adolescent perceptions of maternal attitudes.** Adolescents indicated their perceptions of their mothers’ attitudes toward their using birth control and engaging in sexual activity. The birth control item was “How would your mother feel about your using birth control at this time in your life?” and was scored from 1 to 5, with higher scores indicating greater degrees of approval. This measure focused on adolescent perceptions of maternal approval and does not necessarily reflect actual maternal approval. Research suggests that adolescent perceptions of maternal attitudes are more important than actual maternal attitudes, so the focus on this variable is theoretically appropriate.<sup>5,6</sup> However, we also examined the predictive utility of the mother’s self-report about whether she recommended a specific birth control method to her adolescent. This reflects a different construct, namely, whether the mother explicitly recommended a specific birth control method.

Adolescent perceptions of the extent to which their mothers disapproved of their engaging in sex were measured with a 5-point disapprove–approve scale in response to the item “How would your mother feel about your having sex at this time in your life?” Higher scores indicated greater disapproval. These measures have been used successfully in past research and have been shown to have construct validity.<sup>3</sup>

**Physical development and relationship.** Adolescents were asked to describe their physical maturity by answering multiple questions about physical development. The female items emphasized breast development, body curves, and the degree of overall physical development. The male items focused on facial hair growth, underarm hair growth, voice deepening, and the degree of overall physical development. Measures that use this approach have been used in other research on physical development and are correlated with more detailed measures based on direct observations.<sup>11,12</sup> Parents also were asked whether they thought their adolescent was currently involved in a romantic relationship with a member of the opposite sex.

**Adolescent satisfaction with maternal relationship.** Adolescents’ satisfaction with their relationship with their mothers was measured by the following item: “Overall, I am satisfied with my relationship with my mother.” This statement was accompanied by a 5-point agree–disagree scale, with higher numbers indicating greater agreement. This measure has been found to be highly correlated with more complex measures of relationship satisfaction and has been used successfully in numerous empirical studies.<sup>3,4</sup>

**Analytic strategy.** The Longitudinal Study of Adolescent Health used a stratified cluster sampling design in which schools were sam-

pled from the Quality Education Data database; grade span, number of students, school type (public, Catholic, private), geographic region, urbanicity, and ethnicity were taken into account. Student-level sampling weights were derived for both waves of the design.<sup>8</sup> These weights were used to derive parameter estimates and SEs in the statistical models. The community from which the school was sampled was the primary sampling unit. Strata were defined in accord with the clustered design, with a minimum of 2 primary sampling units per stratum. SEs were estimated with the jackknifing methods in WesVar (SPSS Inc, Chicago, Ill).

Because of the sampling strategy, the strata can be defined in multiple ways. Our approach first focused on the unweighted data (ignoring the clusters) and then took into account the primary sampling units with no strata imposed and then again under different strata scenarios. The results reported are for the most conservative analysis (i.e., the strategy that tended to yield the highest SEs, which was the analysis that used primary sampling units with no strata). Unless noted, our conclusions were robust across all analyses.

## Results

The central predictor of interest was the perceived attitude of the mother toward the adolescent’s use of birth control. Grade was included as a covariate to control for the age confound. A measure of social desirability response tendency was included for outcomes that were significantly correlated with it on a bivariate level. Gender also was included as a covariate. All predictors except perceived approval of birth control were mean centered.

Table 1 presents descriptive statistics on the outcome variables, and Table 2 presents the logistic regressions. For the latter analyses, if the 95% confidence interval (CI) for the exponent of the logistic coefficient does not contain 1.00, then the coefficient is statistically significant based on traditional null hypothesis testing. As shown in Table 2, the perception of maternal approval of birth control at wave 1 was associated with a higher probability of engaging in sex (odds ratio [OR]=1.20, 95% CI=1.12, 1.27) and a higher probability of using birth control at one’s most recent intercourse (OR=1.16, 95% CI=1.06, 1.27), when all other predictors were held constant. The perception of birth control approval was not significantly related to the occurrence of a pregnancy, but it did achieve significance when unweighted analyses were performed (exponent of coefficient=1.17, 95% CI=1.04, 1.35). To provide perspectives on the magnitude of the effects for sexual intercourse and birth con-

**TABLE 1—Weighted Percentages of Sexual Behavior Outcomes for Adolescent Behavior Between Interview Waves**

Sample	Had Intercourse Since Wave 1, %	Used Birth Control Since Wave 1, %	Got Pregnant Since Wave 1, %
Total	37.3	72.1	NA
Females	37.4	71.4	3.8
Males	37.2	72.9	NA
Grade 7	15.9	65.2	1.4
Grade 8	25.9	64.6	2.6
Grade 9	35.1	73.0	4.0
Grade 10	45.7	73.7	4.8
Grade 11	56.0	73.9	5.7

Note. NA=not applicable.

control use, we calculated the predicted odds for perceived maternal approval of use of birth control when all other variables were mean centered and perceived approval was at its lowest value (1) and at its highest value (5). For sexual intercourse, the predicted odds of engaging in sex was 2.1 times higher when perceived approval was high as opposed to low. For birth control use, the predicted odds of using birth control was 1.8 times higher when perceived approval was high as opposed to low.

Several analyses were performed that incorporated product terms in the model. The first analysis tested for differential effects of perceived maternal birth control approval as a function of the adolescent's virgin status at wave 1. A statistically significant interaction effect ( $P < .05$ ) was observed only for the oc-

currence of sexual intercourse. The logistic coefficient for virgins was 0.17 (OR=1.18, 95% CI=1.11, 1.26), whereas for nonvirgins it was 0.00 (OR=1.00, 95% CI=0.88, 1.12). Thus, the effect of perceived maternal birth control approval on the occurrence of sex between wave 1 and wave 2 was concentrated on virgins. Additional exploratory analyses examined interaction effects between perceived maternal birth control approval and each of the covariates in Table 2. None of these interactions yielded statistically significant results.

Some effects yielded statistically significant coefficients when analyzed with the unweighted data but not when analyzed with the weighted data. The parameter estimates in the 2 sets of analyses were comparable, but the SEs of the parameters were smaller in the case

of the unweighted data. We note effects that were not robust across analytic method with the idea that they should be scrutinized in future research. One effect focused on perceived maternal birth control approval and the pregnancy outcome, as noted earlier. Higher levels of perceived approval were associated with increased pregnancy incidence for the unweighted but not the weighted analysis. A second effect that was significant in the unweighted but not weighted analyses was a grade-by-approval interaction, suggesting that the effect of perceived maternal approval of birth control on sexual activity was larger for younger adolescents.

Relationship satisfaction between adolescents and their mothers had a consistent effect on all 3 outcomes, such that higher-quality relationships were associated with a higher probability of using birth control and a lower probability of both engaging in sex and becoming pregnant (see Table 2). We tested for a possible interaction effect between relationship satisfaction and perceived birth control approval, but this interaction was not significant for any of the outcome measures based on the weighted analyses. However, the interaction was significant for sexual activity in the unweighted analyses, with the coefficient suggesting that perceived birth control approval tended to mitigate the positive effects of relationship satisfaction approval.

Finally, we explored the predictive utility of whether the adolescent's mother had recommended a method of birth control to him or her. This variable was correlated (0.26) with

**TABLE 2—Logistic Regressions Predicting Sexual Intercourse, Use of Birth Control, and the Occurrence of a Pregnancy Between Interview Waves**

Predictor	Had Intercourse Since Wave 1 <sup>a</sup>		Used Birth Control Since Wave 1 <sup>b</sup>		Got Pregnant Since Wave 1 <sup>c</sup>	
	B	Exp B (95% CI)	B	Exp B (95% CI)	B	Exp B (95% CI)
Phys develop	0.30	1.35 (1.25, 1.45)	-0.07	0.93 (0.82, 1.06)	0.30	1.35 (0.96, 1.90)
In relationship	0.65	1.92 (1.64, 2.24)	0.10	1.11 (0.88, 1.38)	0.23	1.26 (0.80, 1.97)
Mother percvd sex	1.66	5.26 (4.31, 6.42)	0.07	1.07 (0.81, 1.42)	0.88	2.41 (1.27, 2.62)
Gender	-0.26	0.77 (0.67, 0.89)	-0.27	0.76 (0.62, 0.95)	NA	NA
Grade	0.24	1.27 (1.20, 1.34)	0.14	1.15 (1.04, 1.27)	0.16	1.17 (0.95, 1.44)
Soc desire	-0.03	0.97 (0.86, 1.09)	NA	NA	NA	NA
Relation satisfact	-0.26	0.77 (0.71, 0.84)	0.16	1.17 (1.04, 1.33)	-0.35	0.70 (0.59, 0.84)
Disapproval of sex	-0.34	0.71 (0.65, 0.78)	0.07	1.07 (0.92, 1.25)	-0.25	0.78 (0.58, 1.04)
Approval of birth control	0.18	1.20 (1.12, 1.27)	0.15	1.16 (1.06, 1.27)	0.13	1.14 (0.95, 1.37)
Constant	-1.11		0.43		-4.07	

Note. B=logistic coefficient; Exp B=exponential of B; CI=confidence interval; Phys develop=measure of physical development; In relationship=mother's perception of whether adolescent is in a steady relationship (1=yes, 0=no); Mother percvd sex=mother's perception of whether adolescent has engaged in sex (1=yes, 0=no); Gender (1=male, 0=female); Soc desire=social desirability score; Relation satisfact=adolescent's rating of relationship satisfaction; Disapproval of sex=adolescent's perception of maternal disapproval of adolescent's engaging in sex; Approval of birth control=adolescent's perception of maternal approval of the adolescent's use of birth control; NA=not applicable.

<sup>a</sup>n=8296, total weighted N=12027542; -2 log likelihood for full sample (weighted)=11969255; -2 log likelihood for model containing intercept only (weighted)=15455921; overall model fit  $F_{9,71}=98.29$ ,  $P < .001$ .

<sup>b</sup>n=2807, total weighted N=3843773; -2 log likelihood for full sample (weighted)=4434480; -2 log likelihood for model containing intercept only (weighted)=4528273; overall model fit  $F_{8,72}=5.30$ ,  $P < .001$ .

<sup>c</sup>n=4608, total weighted N=6494377; -2 log likelihood for full sample (weighted)=1613197; -2 log likelihood for model containing intercept only (weighted)=1810045; overall model fit  $F_{7,72}=16.35$ ,  $P < .001$ .



the adolescent's perception of the mother's approval of the use of birth control. When introduced into the logistic model in place of the perceived approval measure, the mothers' reports of having recommended a method of birth control were associated with a higher probability of engaging in sex (OR=1.42, 95% CI=1.21, 1.67) but not with use of birth control or with the occurrence of a pregnancy. The effect on sexual activity remained statistically significant (OR=1.35, 95% CI=1.14, 1.59) even when the adolescents' perceptions of their mothers' approval of birth control were included in the equation. As with perceived approval, this variable interacted with virgin status (exponent of product term coefficient=1.65, 95% CI=1.17, 2.32), with a significant effect for virgins but not for nonvirgins.

## Discussion

An issue of concern to many parents is the possibility that messages about the importance of using birth control may increase the odds of a child's engaging in sex or becoming pregnant. Although little evidence supports such a proposition for school-based sex education programs,<sup>6</sup> there is a paucity of research on the effects of such messages from parents. The present data are correlational in nature and conclusions must be tentative, but the results are consistent with the proposition that conveying approval of birth control use may have mixed effects.

If an adolescent perceives such approval, then the adolescent may be more likely to initiate sex if she or he is a virgin. However, perceptions of approval are also associated with an increased tendency to use birth control at one's most recent intercourse. How these dynamics translate into the occurrence of a pregnancy is ambiguous. After controlling for a range of alternative explanations, the weighted analyses suggested statistically nonsignificant effects of this predictor on the occurrence of a pregnancy, but the unweighted analyses suggested that higher-approval perceptions were associated to some extent with an increased incidence of pregnancy. The fragility of this result suggests that future research should explore the issue more fully. The outcome variables in this study were complex and multivariately determined, so any one variable probably would not have large effects. Placed in this context, the observed effect sizes are about what one might expect: small but not insignificant.

When no covariates were included in the analysis, perceived maternal approval of the adolescent's use of birth control was related to increased sexual activity, increased use of birth control, and an increased incidence of pregnancy. These associations may have little to do

with the effects of perceived birth control approval but instead may reflect the operation of confounds. One alternative explanation was that the association is spurious because of the common cause of age. The data did not support this proposition, because an association between the variables was still apparent when age was held constant.

A second hypothesis was that a mother becomes approving of her child's use of birth control when she thinks that her teen has engaged in sex or is about to engage in sex. The data were not consistent with this proposition, because the association between perceived maternal attitudes and behavior persisted, even when the mother's perception of whether her teen was in a steady relationship or had engaged in sex and the teen's physical development were held constant.

A third hypothesis was that perceived birth control approval merely reflects a more general attitude on the part of the parent regarding approval of sexual activity and that this latter attitude is most relevant to the prediction of sexual outcomes. The data did not support this argument, because the effects of perceived birth control approval persisted even when the more general attitude toward sex was held constant. In addition, a similar pattern of results was obtained when the predictor was a maternal report of whether she had recommended a method of birth control to her adolescent (although the maternal report was not significantly related to birth control use, the adolescent report was).

The current data do not imply that parents should avoid talking with their children about birth control. Children get information about birth control from different sources, some of it true and some false. Parents must take responsibility for the information that their children have about birth control. Even if a parent opposes for moral reasons his or her child's using birth control, the parent should talk with the child to alert him or her to these views and to place birth control in a relevant moral context. For parents who adopt a safer sex perspective, our data suggest that this must be done with care, because some adolescents may have difficulty with mixed messages. Although we observed an overall tendency for virgins who thought their parents were approving of birth control use to be more likely to initiate sex, many parents in our sample successfully conveyed approval of birth control without any adverse sexual consequences for their adolescent. The challenge for future research is to determine what makes such parents successful. Simply encouraging parents to talk with their teens about safer sex may not be sufficient unless additional guidelines can be provided so that parents do so effectively.

Past research suggests that parent-adolescent conversations about sex tend to be

dominated by discussions of the negative consequences of pregnancy, the threat of sexually transmitted diseases, and general parental disapproval of the adolescent engaging in sex.<sup>6</sup> We believe that young adolescents will be less likely to engage in irresponsible sex if they have a broad set of reasons and motivations for not doing so. The threat of pregnancy and sexually transmitted disease are only 2 of many such reasons, both of which are mitigated by condom use. If parents develop in their adolescent a broader set of motivations for responsible behavior, including consideration of the social, emotional, familial, and moral consequences of irresponsible behavior, then removing the threat of pregnancy or sexually transmitted diseases by approving of birth control may have minimal effect on future sexual activity and pregnancy. Even with the threat of unintended pregnancy and disease lessened, the adolescent will still have an array of reasons for avoiding irresponsible behavior. Our results showing an association between parent-adolescent relationship satisfaction and lowered sexual risk suggest such an interpretation.

An interesting paradox in our data was the implication that a safer sex message from parents may increase the likelihood of sexual intercourse for some adolescents, whereas such trends have not been observed in school-based sex education programs. The effects of safer sex messages may be source dependent: when such information is provided by teachers and health educators, it may have a less adverse effect than when it is conveyed by parents. Future research is needed to explore this issue.

The present analysis used a school-based sample that does not, strictly speaking, permit generalizations beyond such populations. The research also relied on self-reports of behavior, which signals a need for cautious interpretation. The design was correlational, and many of the constructs were represented by a single measure, introducing potential bias in parameter estimates from measurement error. If a construct is not adequately represented by a measure, then that construct may not be fully controlled for in the statistical analyses (e.g., if physical development of the adolescent and the parental perception that the child is in a romantic relationship are imperfect indicators of parental perceptions of the adolescent's "readiness for sex," then introducing these measures into the prediction equation may not fully control for the parent's perception of the adolescent's readiness for sex). Despite these caveats, the results reported here are suggestive and set the stage for future research on this important topic. □

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## Contributors

J. Jaccard was a member of the research team that designed and collected the data for the Longitudinal

Study of Adolescent Health database on which the current study was based. Both authors contributed equally to all aspects of this research.

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