

Early Predictors of Nonmarital First Pregnancy and Abortion

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Most research on abortion has focused on women's characteristics at the time of the procedure, but individuals' behavior may also be shaped by their experiences from younger ages. This study uses longitudinal data on 351 California white women aged 27–30 in 1990–1991 to identify characteristics in childhood and adolescence that predict who will have a nonmarital first pregnancy and, of those who do, which women will seek an abortion. Bivariate analyses reveal that psychosocial characteristics indicating a strong sense of autonomy, such as feeling it is important not to be tied down and engaging in socially undesirable behavior, are significantly associated with the likelihood of having a nonmarital first pregnancy (odds ratios of 1.7 and 1.5, respectively), but family characteristics are not. However, among women who have a first pregnancy out of wedlock, the odds of having an abortion are mostly influenced by family rather than psychological characteristics, particularly having been a good student and having a well-educated mother (2.0 and 1.7).

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Research describing the demographic and socioeconomic characteristics of women at the time they have an abortion indicates that in the United States, unmarried women account for the bulk of these procedures. In 1987, 9% of pregnancies among married women ended in abortion, compared with 57% of those among unmarried women.¹ In 1990, 82% of abortions were performed on unmarried women.²

Women who have a nonmarital pregnancy are at the highest risk of having an abortion. Thus, to predict what group of women are the most likely to have an abortion, we must first predict what group are the likeliest to have a nonmarital pregnancy. Ideally, we must start with a group of women for whom we have data from the period before any married and before any became pregnant. Such a study directs our interest to the women's childhood and adolescent characteristics and requires a life-course approach.

In this article, we seek to answer two questions: First, what factors predict a nonmarital first pregnancy? Second, among women who have such a pregnancy, what factors predict abortion as the resolution? We focus on two sets of attributes of the women: their family char-

acteristics and their psychosocial traits during childhood and adolescence.

Previous Studies

Only two studies we found have used characteristics of respondents that predate the first pregnancy to predict the likelihood of abortion. In the first, Costa, Jessor and Donovan followed a sample of high school and college students from 1972 or 1973 to 1981.³ The researchers gathered data on the women's psychosocial and family characteristics at the early date and asked at the last follow-up whether they had ever had an abortion; the data did not allow the investigators to classify pregnancies by women's marital status or to identify women who had never been pregnant.

When Costa and colleagues compared the characteristics of women who had had an abortion with those of women who had not, they found that psychosocial unconventionality (as defined by such characteristics as having large numbers of sex partners and having liberal attitudes regarding sex roles) was the primary predictor of who would have an abortion. Family characteristics (such as parental education and father's occupation) did not discriminate women who had had an abortion from those who did not.

In the second study, Cooksey used data from the National Longitudinal Surveys of Work Experience of Youth to identify family characteristics associated with nonmarital pregnancy and with abortion

among women who became pregnant outside marriage between 1973 and 1985.⁴ She found that living in an intact, two-parent family during early adolescence and having parents who had at least a high school diploma decreased the probability of a nonmarital pregnancy and increased the probability of an abortion in the event of a nonmarital pregnancy. The analysis also revealed that the more siblings a woman had, the more likely she was to have a nonmarital pregnancy, and the less likely she was to end such a pregnancy by abortion.

Beyond these two studies, existing theory provides little in the way of guidance concerning the effects of early attributes on the likelihood of abortion. In this article, we follow the lead of Costa and colleagues, who theorized that abortion was unconventional behavior, and of Cooksey, who found that family characteristics directly predicted who among women with a nonmarital pregnancy would have an abortion.

On the other hand, in an earlier analysis based on the same data set used in this article, we showed that preadolescent psychosocial characteristics were stronger predictors of early initiation of intercourse than were family characteristics.⁵ For the present analysis, we therefore hypothesized that psychosocial characteristics would better predict who had a nonmarital first pregnancy, and that family characteristics would better predict which women who had a nonmarital first pregnancy would have an abortion.

Study Design

The Sample

Our sample consisted of women born between March 1960 and March 1963 to white women taking part in the Child Health and Development Study (CHDS). (The number of women of other races in the CHDS sample was too small for separate analysis.) The CHDS followed up mothers and daughters once when the daughters were aged five, once when they were aged 9–11 and once at age 15–17; the survey data, including medical records and follow-up interviews, are available as public-use data sets.⁶ In 1990–1991, we conducted another follow-up of the daughters (who were aged 27–30), in

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Table 1. Percentage distribution of women who have ever been pregnant, by outcome of first pregnancy, according to marital status at the time, Kaiser Health Plan, California, 1990–1991

Outcome	Not married (N=134)	Married (N=83)
Nonmarital birth	9	0
Marital birth	9	80†
Induced abortion	77	6
Miscarriage	5‡	15
Total	100	100

†Included a set of twins counted as one birth. ‡Included one ectopic pregnancy.

which we gathered information on their pregnancy and abortion histories.

To be eligible for entry into the CHDS, a woman had to belong to the Kaiser Health Plan and present for prenatal care at one of its facilities in the San Francisco Bay Area. The Kaiser Health Plan is a broad-membership, prepaid health service plan; most members enroll through their employer. The original CHDS sample contained women of a wide range of socioeconomic categories, but slightly underrepresented those of low socioeconomic status. More women of low than of high socioeconomic status were lost to follow-up, so the final sample used here is slightly more biased toward respondents of high status than was the original CHDS sample.

Of the 470 eligible women, 75% (351) completed self-administered questionnaires during our 1990–1991 fieldwork. (Fewer than 5% declined to participate; the remainder were not located, not contacted or not interviewed by the close of fieldwork.) Most completed the questionnaire at a

*These terms are as follows: truthful, does not tell lies (which was reverse-scored); takes things that do not belong to her; breaks things that belong to others; bullies others; shows off; hides thoughts or feelings; stammers; and seems to relax only at home.

†The checklist consisted of the following items: hates to sit still; messes up the house a lot; cannot take criticism; is lonely and has few friends; is changeable; is often in the dumps; is stubborn; minds without a fuss; argues; is fretful; gets mad easily; is easily upset; has temper explosions; and fights to get her own way.

‡We included women who had a live birth within seven months after marrying among those with a nonmarital pregnancy.

§Through a record-linkage analysis connecting questionnaire data with Kaiser medical records of abortion, we found that 19% of respondents in our study who had had an abortion failed to report it. This underreporting rate is much lower than estimates from studies based on imputation from national abortion records. The only other American study that used record linkage to estimate underreporting, done in the early 1970s in Hawaii, focused on repeat abortions. In that study, 20% of the women who were having their second abortion reported that it was their first. (See: P. G. Steinhoff et al., "Women Who Obtain Repeat Abortions: A Study Based on Record Linkage," *Family Planning Perspectives*, 11:30–38, 1979.)

Kaiser facility in Oakland, but some completed it at home and returned it by mail. We received only the questionnaire data and identification numbers linking respondents to the CHDS public-use data set, thus protecting the identities of participants.

Measures

The CHDS provides a wide range of childhood and adolescent measures that may be examined as possible predictors of nonmarital first pregnancy and abortion; except as will be noted, all data came from the mothers' CHDS questionnaires. (Some variables are reversed in scoring direction from the CHDS to make them coincide intuitively with the direction of the question.) We have grouped the measures we chose to use into family characteristics and daughter's psychosocial characteristics.

The family characteristics relate to the parents' socioeconomic status and to the daughters' characteristics that are directly associated with family background. These are as follows: the number of living siblings at home when the daughter was five years of age; daughter's birth order; daughter's scores at age 9–11 on Raven matrices (a standardized nonverbal test of cognitive ability); mother's score on the Peabody Picture Vocabulary Test (or PPVT, a standardized verbal test of cognitive ability) when the daughter was aged 9–11; mother's assessment of how good a student her daughter was at age 9–11 (rated as excellent, good, average or poor); mother's and father's education (rated as less than eighth grade, eighth grade plus some high school, high school graduate, technical school, some college or college graduate); father's age; daughter's PPVT score at age 15–17; and whether the parents' marriage was intact when the daughter was 9–11 years old and when she was aged 15–17.

The psychosocial attributes reflect daughters' attitudes, personality and behavior that are not directly associated with family status. Data for the following psychosocial characteristics came from the CHDS: whether the daughter felt free to disagree with her father at age 15–17 (rated as always or almost always, sometimes, seldom, or never or almost never); how strongly she believed at age 15–17 that it was important to be married, to have children, not to be tied down, to obey the law and to be dependable (each rated as not important at all, not very important, somewhat important or very important); whether she was "boyish" at age 9–11 (i.e., was described by her mother in terms more commonly used for boys than for

girls*); whether she was temperamental at age nine (based on mother's checklist responses[†]); whether she had problems with her parents at age 15–17 (a factor score based on the daughter's reports of how well she got along with each parent, how important she felt she was to each, whether she respected each parent, whether she felt close to her mother and whether she could stand being around her mother); and whether she had nightmares and wet her bed at age five (as reported by mothers).

Two additional psychosocial measures came from the respondent's answers to items on the 1990–1991 questionnaire: whether at age 27–30 she engaged in socially undesirable behavior (smoking cigarettes, drinking, using illegal drugs, or committing minor infractions of the law, such as traffic violations and shoplifting) and her age at first intercourse.

Results

Among the 351 women in our study, 217 reported having ever been pregnant; 38% of these women had a first pregnancy within marriage, and 62% had one out of wedlock.[‡] In all, 6% of the marital first pregnancies ended in abortion, compared with 77% of the nonmarital first pregnancies (see Table 1).[§]

Given the high proportion of nonmarital pregnancies ending in abortion, being pregnant before marriage clearly was an unintended state among these women. Nevertheless, nearly all of them were exposed to the risk of nonmarital first pregnancy: Half had had intercourse by age 17.5, only one woman married before initiating sexual activity and 94% of the never-married women were sexually experienced.

Predictors of Nonmarital First Pregnancy

Table 2 shows the bivariate odds associated with the women's likelihood of having a nonmarital first pregnancy. The odds ratios in the first column indicate that whereas family characteristics have no effect on the likelihood of having a nonmarital first pregnancy, psychosocial characteristics are strong predictors of this event.

As children and adolescents, women who had a nonmarital first pregnancy had been much more likely than those who did not to feel that it was important not to be tied down, to behave boyishly or to engage in socially undesirable behavior (odds ratios of 1.5–1.7); they also had felt free to disagree with their father, had been temperamental and had had nightmares (odds ratios, 1.3–1.4). They had begun intercourse earlier than other young women,

and during adolescence, they had considered it less important to obey the law. In short, they were more psychosocially unconventional than those who did not have a nonmarital first pregnancy.

When the psychosocial variables were all entered into a multivariate proportional hazards model predicting age at first nonmarital pregnancy (not shown), only the measures for feeling that it was important not to be tied down, boyishness and not believing it important to obey the law remained statistically significant.

Our analysis, like those of Cooksey and of Costa and colleagues, uses pregnancy and abortion histories that are still incomplete, since they are from young women, some of whom may yet have a pregnancy or abortion. As a result, comparing predictor values for women who have had a nonmarital first pregnancy with those for women who have not might only distinguish women who begin childbearing early. Another researcher has addressed a similar difficulty—distinguishing the likelihood of early childbearing from marital status at the time of the birth—by comparing predictors for women who have had a marital birth with those for women who have had a nonmarital birth.⁷ We modified this strategy by comparing women who had a nonmarital first pregnancy with those whose first pregnancy occurred within marriage; the results of this analysis are shown in the second column of Table 2.

As in the previous analysis, family characteristics were hardly a factor, but psychosocial characteristics were strong predictors of a nonmarital first pregnancy. For example, those who had a first pregnancy out of wedlock were almost twice as likely as those who had a marital first pregnancy to have considered it important not to be tied down during adolescence and to have had nightmares as children (odds ratio of 1.9 in each instance). Therefore, we can be confident that our predictions of nonmarital first pregnancy are not a result of incomplete reproductive histories.

Predictors of Abortion

The third column of Table 2 indicates which factors make abortion likely among women who have a nonmarital first pregnancy. When we compare the significant predictors of nonmarital first pregnancy with the predictors of abortion among women who have a first pregnancy outside marriage, we find that they hardly ever overlap.

Family characteristics, which did not predict who would have a nonmarital first pregnancy, were significant predictors of

who among women having such a pregnancy would end it by abortion. The most striking differences were that women who had an abortion were much more likely than others to have been rated good students at age 9–11 and to have well-educated mothers (odds ratios, 2.0 and 1.7, respectively). These women also had fewer siblings at home when they were young, scored higher on standardized tests and had better educated fathers. The data hint that women who had an abortion may have been more likely to come from intact families, but the differences were not statistically significant.

A multivariate logistic regression model predicting an abortion in the event of a nonmarital first pregnancy (not shown) revealed that among family characteristics, only the number of siblings and mother's education retained statistical significance. (Both of these were significant predictors in Cooksey's analysis also.)

Two psychosocial characteristics significantly predicted the likelihood of abortion among women who had a nonmarital first pregnancy. Those who had an abortion had placed much less importance on obeying the law when they were teenagers than those who did not have an abortion. Those who had a nonmarital pregnancy were already a group who considered it unimportant to obey the law when they were adolescents, so those who ended a nonmarital pregnancy in abortion were especially notable for their low regard for obeying the law. Women who had an abortion also had been relatively unlikely to believe as adolescents that it was important to be dependable. These findings support the inference that among women who had a nonmarital first pregnancy, those who obtained an abortion had a strong streak of irresponsibility when they were adolescents.

Overall, of the 14 psychosocial characteristics examined here, eight were significant predictors of nonmarital first pregnancy at $p < .05$, including five that were significant at $p < .01$; only two were sig-

Table 2. Odds ratios indicating the likelihood of nonmarital first pregnancy and, among women with such a pregnancy, the likelihood of abortion, by family and psychosocial characteristics

Characteristic	Nonmarital vs. no nonmarital first pregnancy	Nonmarital vs. marital first pregnancy	Abortion vs. no abortion
Family status			
Siblings at home (5)	0.92	0.91	0.71*
Birth order	0.95	0.98	0.82
Raven matrices (9–11)	0.99	1.00	1.06*
Mother's PPVT (9–11)	1.00	1.00	1.02*
Good student (9–11)	0.95	1.03	2.00*
Mother's education (birth)	0.95	1.08	1.71***
Father's education (birth)	1.03	1.22*	1.33*
Father's age (birth)	0.97	1.02	0.98
Adolescent PPVT (15–17)	1.00	1.02	1.04*
Parents' marriage intact (9–11)	0.93	0.75	1.73
Parents' marriage intact (15–17)	0.58	0.46*	1.51
Psychosocial			
Free to disagree with father (15–17)	1.35*	1.37*	1.47
Important to be married (15–17)	0.80	0.65**	0.87
Important to have children (15–17)	0.84	0.70*	0.77
Important not to be tied down (15–17)	1.70***	1.89***	0.71
Important to obey the law (15–17)	0.60**	0.49***	0.55*
Boyish (9–11)	1.47**	1.41**	1.01
Socially undesirable behavior (27–30)	1.48***	1.64***	1.23
Temperamental (9–11)	1.29*	1.20	0.82
Problems with parents (15–17)	1.25	1.23	1.47
Age at first intercourse (27–30)	0.80***	0.86**	0.85
Nightmares (5)	1.44*	1.86**	0.66
Wets bed (5)	1.21	1.12	1.29
Important to obey parents (15–17)	0.87	0.65*	0.54
Important to be dependable (15–17)	1.07	1.00	0.26*

* $p < .05$. ** $p < .01$. *** $p < .001$. Notes: Numbers in parentheses indicate daughter's age at which the characteristic was measured. PPVT=Peabody Picture Vocabulary Test.

nificant predictors of abortion, both at $p < .05$. Only one psychosocial characteristic was a significant predictor of both having a nonmarital first pregnancy and ending that pregnancy in abortion.

Caution is warranted in interpreting the results of this analysis. Some of the odds ratios for the influence of psychosocial characteristics on abortion are similar to those for nonmarital first pregnancy, but are not significant. Thus, women who had a nonmarital first pregnancy are a group already strongly selected for psychosocial unconventionality, but psychosocial traits do not add to the likelihood that they will end the pregnancy in abortion. For example, their mothers described them at age 9–11 as having traits more common in boys than in girls. However, among women who had a nonmarital first pregnancy, boyishness did not select those who would have an abortion. This means that boyishness at age nine predicts the likelihood of ending a nonmarital first pregnancy in abortion only insofar as it predicts the likelihood of having a nonmarital first pregnancy.

Discussion

An examination of our findings alongside those of Costa, Jessor and Donovan indicates that selection of the proper comparison group is crucial to the results ob-

tained. Costa and colleagues believed that the proper denominator for their study was women who had an unintended pregnancy. Neither they nor we had data on unintendedness of pregnancies. Unfortunately, they could not identify marital status at abortion, and could not determine whether or not subjects had ever been pregnant. Therefore, their results are quite different from ours.

Costa and coauthors concluded that women who had an abortion were characterized by psychosocial unconventionality (measured nearly a decade earlier). By contrast, we found that among women who had a nonmarital first pregnancy, those who obtained an abortion did not differ from those who carried to term on most measures of psychosocial conventionality. In addition, whereas Costa and coinvestigators found no difference in family characteristics between women who ended a nonmarital pregnancy in abortion and those who did not seek this option, we found that family characteristics were the main dimensions on which the two groups differed.

The differences in findings between our study and those of Costa and colleagues can be attributed entirely to data inadequacies that limited the specification of the dependent variable in the earlier study. When we analyzed our data in the same way that the other researchers analyzed theirs (comparing women by abortion experience, irrespective of marital or reproductive status), we got the same result they did: Abortion appeared to be a consequence of psychosocial unconventionality. When we took marital and reproductive status into account, we found that it is being pregnant while not married that

is actually the consequence of psychosocial unconventionality.

Our results are similar to Cooksey's in that we both found that family characteristics predicted abortion among those who had a nonmarital first pregnancy. We did not confirm Cooksey's finding that parental marital breakup predicted abortion with statistical significance, but our data pointed in that direction. Our results differed from hers in that we did not find family characteristics predictive of nonmarital first pregnancy.

We should note that women in our sample resorted to abortion with much greater frequency than did those in Cooksey's sample. Cooksey reported that 37% of nonmarital pregnancies among white women (excluding those ending in miscarriage) ended in abortion; in our sample, the proportion was 77%. This disparity is no doubt related to the fact that the women in our sample had better educated parents than those Cooksey studied. Only 29% of Cooksey's sample had at least one parent educated beyond high school, compared with 77% of our sample. (No doubt, the different distribution of parental education was also an important contributor to our discrepant results on family predictors of nonmarital first pregnancy.) In addition, Cooksey's data reported the abortion experience of women up to age 24, while ours covered up to ages 27–30. Pregnancies among women in her sample occurred between 1973 and 1985, while those we studied occurred between 1977 and 1991. And of course, hers was a national sample, while ours came from one area in California.

Our life-course approach interprets nonmarital first pregnancy as an accident,

the probability of which is enhanced by unconventional lifestyles and attitudes that are established during adolescence, but that have their foundations in behavior patterns and predispositions that can be identified in childhood. On the other hand, given a nonmarital first pregnancy, the decision to have an abortion is little affected by the psychosocial attributes that predict such a pregnancy. Instead, it is associated with family characteristics, including one's own and one's parents' cognitive abilities—attributes that past research has associated with more favorable attitudes toward abortion.⁸

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