

Factors Affecting Contraceptive Use in Women Seeking Pregnancy Tests: Missouri, 1997

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Context: *If the national health objective of reducing unintended pregnancy is to be met, a better understanding is needed of barriers to women's acquisition and use of contraceptives.*

Methods: *A sample of 311 Missouri women who were seeking pregnancy tests in public health department clinics in 1997 and who said their potential pregnancy was unintended were asked about potential barriers to family planning. Factors affecting contraceptive use among these women were examined by frequency of use, insurance status, education and race.*

Results: *In general, the women mostly disagreed that particular factors were potential barriers to contraceptive use. For only one item—worry over the potential side effects of the hormonal injectable contraceptive—did a majority agree or strongly agree that it was a barrier to method use in the previous six months. Women who used a contraceptive infrequently were more likely than frequent users to identify 33 factors in nine areas as being potential barriers to contraceptive use. These ranged from factors involving access to services and condom-specific issues to cost-related concerns, social norms, pregnancy denial, embarrassment over discussing or obtaining birth control, worry about side effects and experience with forced sex, among others. Perceived barriers differed somewhat by insurance status in the areas of access, embarrassment, side effects and forced sex. For example, women with no insurance coverage reported a higher level of agreement that transportation problems had hindered their access to a clinic than did women with private insurance. Level of education affected agreement only in the area of side effects, with more-educated women expressing greater concern about side effects than less-educated women. The respondent's race affected agreement in six areas: access, social norms, pregnancy denial, embarrassment, forced sex and other miscellaneous concerns, such as condom use and relationship issues.*

Conclusion: *Better education and improved access to and delivery of services might address several factors affecting contraceptive use that are associated with unintended pregnancy. Some barriers, however, such as those related to self-efficacy, self-esteem and fatalistic attitudes about pregnancy, would be much harder for family planning providers to resolve.*

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Unintended pregnancy remains an important public health problem in this country. Despite the widespread availability of contraceptive technology and the national health objective to reduce the rate of unintended pregnancy to 30% by the year 2000,¹ almost half (49%) of all pregnancies in the United States in 1994 were unintended at the time of conception. The incidence of unintended pregnancy is particularly high among young, unmarried women; in 1994, 78% of all pregnancies among 15–19-year-olds and 59% those among 20–24-year-olds were unintended or mistimed, as were 78% of all pregnancies among never-married women.²

Research has suggested links between unintended births and a variety of difficulties. Two Missouri studies that examined barriers to adequate prenatal care³ and risk factors for low birth weight⁴ found that 79% and 58% of births among the respective study populations were unintended.

Moreover, unintended childbearing is associated with poor prenatal care,⁵ domestic violence⁶ and infant death.⁷ Unintended pregnancy may also be linked with prenatal health behavior such as smoking⁸ and drinking during pregnancy.⁹

Although women of all racial and economic backgrounds have unintended pregnancies, specific groups seem to be at highest risk: Women living in poverty report higher rates of unintended pregnancy than their more affluent peers; black women are far more likely than white women to report an unintended pregnancy;¹⁰ and the proportion of unwanted births has increased among less-educated, poor and minority women.¹¹ Since these are the very populations served—or potentially served—by family planning programs and clinics,¹² these facts imply that women at risk of unintended pregnancy are not able to make the best use of the services currently available to them.

Women seeking to prevent pregnancy

face a number of physical and psychological barriers to obtaining family planning services. These barriers may involve access concerns, such as structural, institutional and financial barriers (including clients' inability to pay, lack of transportation and inaccessible clinic hours¹³). They may also include sociocultural and attitudinal barriers (such as lack of knowledge about family planning methods and their availability, perceived risk of pregnancy, attitudes toward contraception, communication about intimacy with partners and peers, and the influence of cultural beliefs and values and social influences from both the partner and the community).¹⁴

This article is based on three related qualitative studies¹⁵ that were exploratory in nature and designed to generate hypotheses. Reasons noted by women in these studies for their lack of contraceptive use included access issues and structural barriers, inadequate knowledge about or problems with contraceptive methods, and a wide variety of sociocultural barriers. For example, perceived barriers to condom use included being embarrassed about acquiring or using them, needing to trust one's partner to use them and perceiving that men do not like them. One study found that among black women, the sexual partner was an important social referent in their use of oral contraceptives.¹⁶

The research reported here builds on these earlier studies to delineate more specifically which barriers present the biggest obstacles to contraceptive access and use. We explore in detail the role of sociocultural barriers, including relative influence of partners, peers and family, as well as attitudinal factors such as cultural beliefs and values, the perceived risk of pregnancy and the cognitive assessment of pregnancy.

Our purpose was to describe the types of barriers that may affect contraceptive

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use in a sample of women who had the potential to be pregnant unintentionally. Thus, we surveyed women who were receiving pregnancy tests and who stated that if they were pregnant, the pregnancy was unintended. In this article, we examine factors influencing contraceptive use as differentiated by women's reported frequency of contraceptive use, their insurance status, their educational level and their race.

Methods

Study Sites

We selected study sites from areas in Missouri with a high unmet need for family planning (i.e., where indicators such as teenage pregnancy rates, rates of out-of-wedlock births, births to women with less than a high school education, high parity and abortion ratios were above the state average). Participants were recruited at 13 local health agencies in these areas.

Data Collection Procedures

Between July and October 1997, all women who were obtaining pregnancy tests were invited to complete a written survey about reproductive health and childspacing while they waited for the results of their test. Women received a \$10 incentive for their time and were asked to fill out the survey before they received the test results. Minors were excluded because we were unable to obtain parental consent, as was required by our university's Institutional Review Board.

To avoid biasing responses, no one interpreted questions for respondents. The survey was written at a sixth-grade reading level and took approximately 20–30 minutes to complete. Respondents were instructed that they could ask a staff member to read a word or the entire section if they needed assistance, but in no case did an interviewer administer the survey by reading all questions to a woman. Respondents then sealed the completed survey in a preaddressed, postage-paid envelope and placed it in the health agency's mail outbox. Because of concerns about confidentiality, staff and interviewers were instructed not to handle the completed surveys.

Survey Instrument

The survey instrument consisted of 90 structured items.* Respondents were first asked about their demographic characteristics and about their usual medical care provider, health insurance, previous pregnancies, feelings and intentions about a possible current pregnancy, and current and previous methods of birth control.

At the core of the survey were several sets of Likert-scale items on factors affecting the general acquisition and use of contraceptives in the last six months. Women were asked: "How much do you agree or disagree with the following statements about your use of birth control during the past six months?" In addition, there were separate sections on their attitudes about the acquisition and use of the pill, the condom and the hormonal injectable contraceptive. Women were asked to "Please state whether you agree or disagree with these statements about using birth control pills" (13 items). They also were asked to state whether they agreed or disagreed with 10 statements about condoms and nine statements about injectables.

The questions were designed to reflect attitudinal barriers, general knowledge barriers, structural barriers and sociocultural barriers to contraceptive use. Possible scores ranged from 1 (strongly disagree) to 5 (strongly agree). (A copy of the questionnaire is available from the authors.)

Because the women were surveyed while waiting to obtain a pregnancy test, they were asked about the intendedness of that potential pregnancy: Specifically, we asked if they had wanted to become pregnant at an earlier time, if they wanted to become pregnant at this time, if they did not want to become pregnant now but wanted to do so sometime in the future, or if they did not want to become pregnant now or at any time in the future. Those giving the last two responses were categorized as potentially having an unintended pregnancy, with the first considered to indicate a mistimed pregnancy and the second an unwanted pregnancy. Women were also asked how they would feel about a potential pregnancy, on a five-point scale ranging from very happy (1) to very unhappy (5).

Analysis

A factor analysis was performed on the 54 Likert-scaled items measuring the women's knowledge, attitudes and practices regarding use of contraceptives in general over the last six months, as well as use of the pill, condoms and injectables. This analysis was performed only for the purpose of grouping variables, not to obtain factor scores. Using a combination of factor analysis results and theoretical considerations, we formed the items into nine groups of variables for further analysis.† These groups were classified as follows: access (10 items); method (five items); cost (two items); norms (five items); denial (two items); embarrassment (three items);

side effects (five items); forced sex (one item) and other. (The latter category included all items that did not load on any factor in the factor analysis.)

For the "forced sex" item, a one-way univariate analysis of variance was performed to determine the significance of the differences between levels of contraceptive use. Another one-way analysis of variance was performed to determine the significance of differences by level of insurance status. A third one-way analysis of variance was performed to determine the significance of differences by race. The one forced sex item was the dependent variable, while contraceptive use, insurance and race were the independent variables.

Because the data on education were skewed, we performed a rank transformation to conduct a one-way univariate analysis of variance to determine the significance of the differences by level of education. An analysis of variance was performed based on the ranked data. Standard parametric analyses were used for the other comparisons (contraceptive use, insurance status and race).

For the other eight groups, eight one-way multivariate analyses of variance were performed to determine any differences between levels of contraceptive use. The items in each group were the dependent variables, and contraceptive use was the independent variable. When the multivariate analysis of variance was significant, univariate analyses of variance were performed to determine the significance of differences between the level of contraceptive use on each item. We did the same analysis for insurance status and for race. A total of 24 one-way multivariate analyses of variance were therefore performed. We conducted pairwise comparisons to probe for differences by insurance status.

Again, because of the skewed nature of the education data, rank transformation was used to conduct one-way multivariate analysis of variance to determine if there were differences by level of education. Eight one-way multivariate analyses of variance were performed based on the ranked data. When the multivariate analysis of variance was significant, univariate analyses of variance were performed to determine the significance of differences by level of education on each item. Again, we

*The survey was pilot-tested with women at a clinic not in the study area and was revised based on their comments. The questionnaire was also assessed for content validity by a group of family planning service providers and researchers.

†The reason for doing this was to control for inflating the alpha level in the group comparisons.

Table 1. Percentage distribution of Missouri women seeking pregnancy tests at public health facilities and not wanting to be pregnant, by selected characteristics

Characteristic	No.	%
Age (N=311)		
18–19	89	28.6
20–24	130	41.8
25–29	66	21.2
30–39	26	8.4
Ethnicity (N=310)		
White	169	54.5
Black	125	40.3
Other	16	5.2
Hispanic origin (N=285)		
Yes	16	5.5
No	269	94.5
Size of local population (N=307)		
<25,000	81	26.4
25,000–250,000	75	24.4
>250,000	151	49.2
Marital status (N=311)		
Never-married	200	64.3
Married	67	21.5
Single/divorced/widowed	44	14.1
Education (N=311)		
>high school	93	29.9
High school	125	40.2
Some college/college graduate	93	29.9
School/employment status (N=304)		
Student	81	26.6
Working	151	49.7
Other	72	23.7
Usual site of medical care (N=305)		
Doctor's office/clinic	141	46.2
Public health/family planning provider	60	19.7
No one place	65	21.3
Emergency room	16	5.2
Hospital clinic	16	5.2
Other	7	2.3
Type of health insurance (N=307)		
None	181	59.0
Medicaid	60	19.5
Insured through work	53	17.3
Self-insured	13	4.2
Previous pregnancies (N=311)		
0	91	29.3
1–2	135	43.5
3	85	27.3
Previous live births (N=298)		
0	113	37.9
1–2	145	48.7
3	40	13.4
Intendedness of potential pregnancy (N=311)		
Mistimed	258	83.0
Unwanted	53	17.0
Frequency of contraceptive use (N=310)		
Always	89	28.7
Quite often	79	25.5
Sometimes	53	17.1
Rarely	40	12.9
Never	49	15.8
Total	311	100.0

Note: Percentages may not add to 100% due to rounding.

conducted pairwise comparisons to probe for differences by education. As noted above, standard parametric analyses were used for the other comparisons.

Results

Sample Description

A total of 311 women aged 18 or older who completed surveys stated that their potential pregnancy was unintended. The age range of the study population was 18–39, with 42% in their early 20s (Table 1). The sample was more than one-half white, with the remainder consisting predominantly of black women; nearly 6% of respondents said they were Hispanic.

Approximately 49% were metropolitan residents (i.e., living in an area with a population of more than 250,000), 24% were urban residents (living where the population was between 50,000 and 250,000) and 26% were rural residents (living where the population was less than 25,000). A greater proportion of rural and urban residents were white, while a greater proportion of metropolitan residents were black.

A majority of respondents (64%) said they were never married. Forty percent reported having completed high school, with 30% each reporting either less than or more than a high school education.* Only 27% of the study population were students at the time of the survey, while half were working.

The most common usual site for the respondents to obtain medical care was a doctor's office or clinic (46%), while almost 20% reported attending a public health department or family planning clinic. Twenty-one percent stated that they did not have a usual place to go for care. Twenty-nine percent reported no previous pregnancies, and 38% reported no previous live births.

When queried about their health insurance status, 59% reported that they had none, while only 20% reported being covered by Medicaid. (However, 35% said they had been covered by Medicaid at some time during the preceding year.) Only 17% were insured through work (even though half of the respondents reported working at the time of the survey). Only a small proportion (4%) reported being self-insured, although the nature and coverage of that insurance is unknown.

Among the 126 insured women, 34% said that their insurance did not cover family planning visits, 44% reported that it covered all or part of such visits and 22% did not know (not shown). Further, 41% of women with insurance coverage noted that it did not cover the cost of their method, 35% stated that it paid for all or part of that cost and 24% did not know. Finally, among women who reported having children, only 23% said they currently received Temporary Assistance to Needy Families.

Attitudes

Eighty-three percent of respondents noted that if they were pregnant now, the pregnancy would be mistimed (Table 1). When respondents were asked "How often do you use a birth control method?" just over half (54%) reported always or quite often using one, while nearly half did not: 30% sometimes or rarely, and 16% never. More than one-third (39%) reported that they had not used birth control in the past six months.

The responses to the Likert-scale questions (Table 2) are presented according to the nine subgroups into which they were divided. The vast majority of women generally disagreed that most of the statements reflected barriers to contraceptive acquisition and use: For 38 of the 54 potential barriers listed in Table 2, at least 65% of respondents either disagreed or strongly disagreed that such a barrier had affected their access to contraception in the preceding six months.

In contrast, for only one question (concerning worry over the potential side effects of the hormonal injectable) did a majority of women agree or strongly agree that it was a barrier to use. In addition, at least 35% of respondents agreed that having to take the pill every day, having difficulty trusting men about condom use, worrying about or disliking pill-related side effects, disliking menstrual irregularity associated with use of injectables and being uneasy about condoms because they can break were issues that had affected their contraceptive decisionmaking in the preceding six months.

Frequency of Contraceptive Use

When the nine groupings of the Likert-scaled items were compared by frequency of contraceptive use, all of these groupings were found to be statistically significant in the multivariate analyses of variance (Table 3, page 128).

Table 3 also presents the individual statements from these groupings that were statistically significant in the univariate analyses. Although the score for only one item was high enough to indicate some agreement (worry about side effects, 3.14), in all cases women who reported infrequent contraceptive use or nonuse had higher agreement scores than did those who always or quite often used contraceptives.

The statements that received mean scores with the largest absolute differences

*Since only women aged 18 and older were surveyed, the 30% who reported less than 12 years of education probably represent women who had dropped out of school rather than those who had not yet completed school because of young age.

Table 2. Percentage distribution of Missouri women seeking pregnancy tests and not wanting to be pregnant, by level of agreement with statements about factors affecting contraceptive use (N=311)

Factor	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Total
Access						
Clinic hours are not convenient for me	50.8	29.4	9.9	6.1	3.8	100.0
I have transportation problems getting to the clinic	50.2	24.6	12.8	8.3	4.2	100.0
It is hard for me to get time off work or school to go to the clinic	44.4	24.9	11.5	14.7	4.5	100.0
It takes too long to get appointment to get birth control	55.0	27.3	10.0	5.1	2.6	100.0
There is too much waiting time at the clinic	46.2	23.6	14.7	11.5	4.1	100.0
It is hard to get transportation to clinic	47.5	31.2	11.8	6.1	3.5	100.0
I am too busy to get birth control pills	52.9	31.1	9.3	3.2	3.5	100.0
I am more likely to use pills if they are available over the counter	34.1	23.5	17.4	15.1	10.0	100.0
If I didn't have to get a pelvic exam, I'd be more likely to get pills	43.5	27.2	12.8	9.0	7.7	100.0
Injectable is hard to use (need to return to clinic every 3 months)	33.8	29.3	23.3	10.2	3.4	100.0
Method						
It is hard to take pills at same time every day	29.0	17.8	12.7	27.4	13.1	100.0
There is no point in getting condoms because men don't like to use them	51.3	25.0	11.1	10.8	1.9	100.0
The trouble with condoms is that you have to trust the man to use them	31.3	19.0	14.6	23.7	11.4	100.0
My partner refuses to use condoms	47.3	27.0	13.0	6.0	6.7	100.0
Condoms make sex less spontaneous	41.7	24.8	14.0	15.9	3.5	100.0
Cost						
I don't use birth control because it costs too much	62.4	24.8	5.7	5.4	1.6	100.0
Pills cost too much for me	40.1	28.3	14.0	12.1	5.4	100.0
Norms						
It is wrong to use birth control	73.3	17.1	5.7	1.6	2.2	100.0
My parents are against birth control	76.7	14.7	5.8	1.3	1.6	100.0
I wouldn't use birth control if my partner disapproved	62.7	1.6	25.3	6.8	3.6	100.0
My partner doesn't want me to take the pill	57.0	26.4	10.2	3.5	2.9	100.0
My family isn't supportive of me using the pill	51.8	27.5	11.5	5.1	4.2	100.0
Denial/knowledge						
I just didn't think about using birth control	49.0	18.2	17.8	9.9	5.1	100.0
I didn't think I'd get pregnant	30.1	19.6	19.2	18.0	13.1	100.0
Embarrassment						
Discussing birth control with a partner is embarrassing	64.9	24.9	6.7	2.9	0.6	100.0
It is embarrassing to go to get the pill	55.8	29.5	9.0	4.2	1.6	100.0
It is embarrassing to go to buy condoms	46.5	26.0	11.7	10.8	5.1	100.0
Side effects						
I worry about the side effects of birth control	34.5	15.0	15.7	21.4	13.4	100.0
Pills have side effects that I don't like or am worried about	19.8	18.2	18.8	26.1	17.2	100.0
I was breastfeeding—didn't think I could use the pill	53.7	23.5	18.7	2.6	1.6	100.0
I worry about the side effects of injectable	10.8	6.0	17.9	28.7	36.6	100.0
I wouldn't use injectable—I don't like irregular periods	19.2	14.3	23.7	26.3	16.5	100.0
Forced sex						
I was pressured or forced into having sex	76.6	15.1	6.1	1.0	1.3	100.0
Other*						
I don't know how to get birth control	75.1	17.9	3.2	2.2	1.6	100.0
I have no one to watch my kids so I can go to a clinic	60.5	22.5	12.5	3.2	1.3	100.0
There is no clinic close to where I live	59.1	26.2	8.3	4.2	2.2	100.0
It takes too long to get an appointment to get pills	42.6	33.3	14.4	6.1	3.5	100.0
Condoms cost too much for me	41.1	30.1	14.6	11.1	3.2	100.0
I don't know where I can get condoms	61.8	31.2	5.1	1.3	0.6	100.0
Injectable is expensive	18.4	15.0	36.3	20.2	10.1	100.0
Condoms aren't a good method because they can break	19.9	17.4	24.4	27.2	11.1	100.0
I wouldn't use injectable—I don't like getting shots	29.5	28.4	21.6	13.1	7.5	100.0
I was breastfeeding—I didn't think I could use injectable	46.4	17.0	30.2	4.2	2.3	100.0
Going to get birth control is embarrassing	65.9	22.3	7.3	3.5	1.0	100.0
I'm too embarrassed to ask my partner to use condoms	59.5	29.1	6.3	4.1	1.0	100.0
I was breastfeeding and didn't think I'd get pregnant	60.5	18.0	19.0	1.6	1.0	100.0
I wasn't in a relationship and didn't have sex often	43.1	19.3	18.3	12.9	6.4	100.0
My friends don't use birth control when they have sex	46.0	19.8	25.2	5.4	3.5	100.0
I don't want my parents to know that I use birth control	63.7	24.2	6.4	4.1	1.6	100.0
My partner doesn't want me to use injectable	46.2	20.7	21.1	7.9	4.1	100.0
Planning ahead about birth control can spoil the fun of sex	69.2	21.8	4.2	2.9	1.9	100.0
Condoms make sex less pleasurable	37.3	23.1	14.6	19.9	5.1	100.0
Having sex was unexpected—no time to prepare	51.6	24.0	14.4	7.1	2.9	100.0
It doesn't matter if I use birth control—when [it is] my time to get pregnant, it will happen	49.4	21.5	14.1	9.6	5.5	100.0

*Items that did not load on any factor.

between infrequent and frequent contraceptive users included "I just did not think about using birth control," "It doesn't matter whether I use birth control, when it is

my time to get pregnant it will happen," and "My friends don't use birth control when they have sex." Other barriers for which infrequent contraceptive users had

higher agreement scores included access (particularly transportation) and cost, partner issues (having to trust the man to use condoms and having a partner who

Table 3. Mean score (and standard deviation) indicating level of agreement that selected issues are barriers to contraceptive use, by frequency of current contraceptive use, and p-value for F statistic indicating difference by contraceptive practice, according to potential barrier

Barrier	Always/ quite often	Sometimes/ rarely/never	F statistic p-value
Access			
Have transportation problems	1.64 (1.02)	2.25 (1.22)	.0006*
Hard to get time off work or school	1.92 (1.20)	2.28 (1.26)	.0227
Takes too long to get appointment	1.58 (0.96)	1.93 (1.09)	.0068
Waiting time at clinic is too much	1.81 (1.36)	2.25 (1.25)	.0039
Am too busy to get birth control pills	1.52 (0.85)	1.93 (1.08)	.0009
Have to return every three months for injection	2.06 (1.04)	2.42 (1.17)	.0089
Method			
Have to trust man to use condoms	2.43 (1.41)	2.95 (1.37)	.0013
Partner refuses to use condoms	1.72 (0.99)	2.24 (1.31)	.0001
Cost			
Birth control costs too much	1.33 (0.72)	1.91 (1.06)	.0001*
Birth control pills cost too much	1.96 (1.19)	2.40 (1.23)	.0020
Norms			
It is wrong to use birth control	1.21 (0.63)	1.64 (0.97)	.0001*
Parents are against birth control	1.17 (0.46)	1.58 (0.98)	.0001
Would not use birth control if partner disapproved	1.29 (0.55)	1.85 (1.04)	.0001
Partner does not want me to take pills	1.47 (0.82)	1.91 (1.04)	.0001
Family is not supportive of me using pills	1.59 (0.94)	2.09 (1.19)	.0001
Denial			
Just did not think about using birth control	1.57 (1.03)	2.66 (1.22)	.0001
Did not think I would get pregnant	2.45 (1.45)	2.90 (1.31)	.0052
Embarrassment			
Discussing birth control with partner is embarrassing	1.36 (0.75)	1.64 (0.80)	.0013*
Embarrassing to go get birth control pills	1.51 (0.81)	1.86 (1.02)	.0008
Side effects			
Worried about side effects	2.35 (1.40)	3.14 (1.50)	.0001*
Forced sex			
Pressured or forced to have sex	1.28 (0.70)	1.45 (0.81)	.0477*
Other			
Was breastfeeding, did not think would get pregnant	1.47 (0.81)	1.81 (0.99)	.0001*
Not in sexual relationship/having sex infrequently	2.02 (1.25)	2.40 (1.29)	.0040
Going to get birth control is embarrassing	1.33 (0.71)	1.72 (0.94)	.0217
Embarrassed to ask partner to use condom	1.37 (0.61)	1.74 (0.93)	.0003
Sex was unexpected; no time to prepare	1.63 (0.97)	2.05 (1.16)	.0003
When it is my time, it will happen	1.57 (0.97)	2.46 (1.30)	.0027
Friends do not use birth control	1.71 (1.01)	2.42 (1.13)	.0001
Do not want parents to know I use birth control	1.34 (0.69)	1.73 (1.01)	.0002
Do not know how to get birth control	1.18 (0.51)	1.56 (0.94)	.0005
There is no clinic close to where I live	1.48 (0.86)	1.82 (1.03)	.0001
Do not know where I can get condoms	1.34 (0.56)	1.60 (0.84)	.0059
Planning ahead spoils fun of sex	1.21 (0.61)	1.66 (0.89)	.0047

*From multivariate analysis of variance. (All other p values are from univariate analyses of variance.) Note: Possible values for mean scores range from strongly disagree (1) to strongly agree (5).

refused to use condoms) and social norms (particularly if the woman's partner disapproved or her family was not supportive of birth control use).

Insurance Status

When we compared the nine groupings of Likert-scaled items by insurance status (private vs. Medicaid vs. none), the multivariate analyses of variance revealed statistically significant differences in four (Table 4): access, embarrassment, side effects and forced sex.

Using univariate analysis to determine which scores for individual statements in these groups differed significantly by insurance status pointed to only one statement in each. The mean scores for each statement (Table 4) indicate that women

with no insurance were more likely to cite transportation difficulties than were the other women. In contrast, privately insured women were more likely than either of the other subgroups to agree that it is embarrassing to buy condoms. Women covered by Medicaid were significantly less likely than the others to cite concern over menstrual irregularities associated with use of injectables, while they were more likely than the privately insured and the uninsured to report having been pressured or forced to have sex.

We also compared two levels of insurance coverage: some insurance (private and Medicaid combined) vs. no insurance (not shown). In this comparison, women with no insurance reported more agreement with the fatalism item ("It doesn't matter

whether I use birth control, when it is my time to get pregnant it will happen") than did women with some insurance.

Education

In the multivariate analysis of variance, the only group that differed significantly by educational level was the side effects group (Table 5). Mean values for two individual side effects statements (both related to the injectable) indicate that worries about the injectable's side effects and dislike for irregular periods were perceived as greater barriers to use by the more highly educated than by less-educated women.

Race

Because previous studies have shown that black women have higher rates of unintended pregnancy than white women,¹⁷ we examined potential barriers to contraceptive use by race. In the multivariate analysis of variance, six groups of variables were statistically significant by race (Table 6, page 130): access, norms, denial, embarrassment, forced sex and other.

In three of these groups (denial, embarrassment and forced sex), only one item each was statistically significant by race: Black women reported higher agreement than white women with the ideas that they did not think they could get pregnant and that they had been pressured or forced to have sex, but reported lower agreement that it is embarrassing to buy condoms. Four access factors exhibited significant differences by race; in each instance, black women were more in agreement that an access barrier affected their contraceptive use than were white women. Black women were also more likely than white women to agree that normative factors (parental opposition to contraception and lack of family support for pill use) constituted barriers to use. For the "other" factors, black women were more likely than white women to agree that two (infrequent sex and lack of a nearby clinic) represented barriers, while white women were more likely than black women to say that partners' opposition to injectable use and the condom's negative impact on sexual pleasure served as barriers to use.

Discussion

The variety of access issues differentiating frequent contraceptive users from infrequent users in this analysis highlights the need for continued efforts to improve access to care. As with other studies,¹⁸ we found that black women identified more problems with clinic services than did white women. Transportation problems

Table 4. Mean score (and standard deviation) indicating level of agreement that selected issues are barriers to contraceptive use, by type of insurance coverage, overall p-value for F statistic indicating difference by insurance status, and specific contrasts and p-value for contrast, all according to potential barrier

Barrier	Private	Medicaid	None	F statistic p-value	Contrast	p-value
Access				.0368*		
Have transportation problems to clinic	1.42 (0.75)	1.84 (1.12)	2.07 (1.21)	.0013	P vs. N	.0003
Embarrassment				.0054*		
Is embarrassing to buy condoms	2.48 (1.23)	1.93 (1.21)	1.85 (1.12)	.0009	P vs. M P vs. N	.0088 .0002
Side effects				.0378*		
Do not like irregular periods with injectable	3.29 (1.32)	2.66 (1.36)	3.16 (1.34)	.0349	P vs. M M vs. N	.0169 .0225
Forced sex				.0241*		
Pressured or forced to have sex	1.20 (0.64)	1.57 (0.96)	1.34 (0.71)	.0241	P vs. M	.0068

*From multivariate analysis of variance. (All other p values are from univariate analyses of variance.) Notes: P=private; M=Medicaid; N=None. Possible values for mean scores range from strongly disagree (1) to strongly agree (5).

were of greater concern to black women than to white women, and to women with no health insurance than to women insured through work. Transportation has been noted as a barrier to other health services, such as prenatal care, for low-income women.¹⁹ But transportation alone cannot account for lack of contraceptive acquisition and use, since some contraceptives are available over the counter at many locations, including supermarkets, pharmacies and retail stores such as Wal-Mart.

Institutional barriers to care, such as waiting time at the clinic and delays in obtaining an appointment, also differentiated frequent from infrequent contraceptive users. This is consistent with previous research in which women's satisfaction with care affected their contraceptive use.²⁰ Previous research has shown that the primary barrier to clinic use is women's belief that clinics offer less personalized and lower quality care than private physicians, while the primary barrier to women's use of private physicians for family planning services is cost and lack of reimbursement from Medicaid.²¹ Nevertheless, regardless of provider type, women are satisfied with their care if they perceive that the clinic staff is courteous, respectful and helpful.²² Expanding clinic hours and making services more user-friendly could improve patient satisfaction and increase contraceptive utilization.²³

Sociocultural barriers identified here include general attitudes towards birth control. Women who think that "planning ahead for sex spoils the fun" have been found to be no less likely than others to use contraceptives, although they are less likely to be satisfied with their method.²⁴ In our study, women who were infrequent

contraceptive users had higher agreement scores that "planning ahead spoils the fun of sex" than women who always or quite often practiced contraception, although the mean scores for both groups reflected general disagreement with that statement.

Negative attitudes towards contraception have been found to influence contraceptive use;²⁵ we found that infrequent contraceptive users are more likely to have negative attitudes toward contraception, to worry about side effects and to note that condom use may be problematic because of the need for cooperation from the male partner. Given persistent fear of side effects from the pill and other hormonal contraceptives,²⁶ providers need to ensure that women are educated about the benefits and effectiveness of these methods, while addressing their concerns or misperceptions about potential side effects.

Partners, peers and family strongly influence contraceptive use.²⁷ We found that infrequent contraceptive users are more likely to perceive these influences as barriers. There may also be a relationship between partners' influence and race in the

case of condom use: White women in our study perceived more barriers to condom use than did black women, corroborating the research finding that black women are more accepting of condom use than are white women.²⁸ This may reflect the fact that black men are more likely than white men to report condom use²⁹ and the influence of perceived partner attitudes. It is possible that social marketing of condoms in the black community for AIDS and STD prevention has resulted in greater acceptance of condoms by black women and men.³⁰

Among the disadvantages noted about condoms was the necessity for partner cooperation and the ability to trust the man to use them. These present potential difficulties in partner negotiation due to economic dependence, social norms and fear of physical violence.³¹ Although we could not measure such difficulties in our study, they represent potential barriers to successful condom use. Directing condom promotion toward couples rather than at women alone would not place the burden of negotiation solely on the woman and might lend support to her efforts to obtain male cooperation.³²

Although one-third of women in our study perceived themselves as being at low risk of pregnancy, they nonetheless were seeking a pregnancy test, perhaps due to unexpected or infrequent sex. Although we did not specifically ask about rape, it is also possible that some who reported unexpected sex were actually victims of nonconsensual sex. (Nevertheless, only 2% agreed that they were pressured or forced into having sex.) Access to emergency contraception is essential for women who have experienced coercive sex or unprotected sex.³³

Embarrassment about acquiring and using condoms is a barrier to their use.³⁴ We identified embarrassment as a factor in three of the four comparison groups based on frequency of contraceptive use,

Table 5. Mean score (and standard deviation) indicating level of agreement that selected issues are barriers to contraceptive use, by level of education, overall p-value for F statistic indicating difference by education, and specific contrasts and p-value for contrast, all according to potential barrier

Barrier	<12 years	12 years	>12 years	F statistic p-value	Contrast	p-value
Side effects				.0262*		
Worry about side effects of injectable	3.40 (1.43)	3.79 (1.21)	4.03 (1.22)	.0032	<12 vs. >12	.0032
Would not use injectable; do not like irregular periods	2.83 (1.35)	2.96 (1.35)	3.47 (1.28)	.0058	<12 vs. >12 12 vs. >12	.0030 .0091

*From multivariate analysis of variance. (All other p values are from univariate analyses of variance.) Note: Possible values for mean scores range from strongly disagree (1) to strongly agree (5).

Table 6. Mean score (and standard deviation) indicating level of agreement that selected issues are barriers to contraceptive use, by race, and overall p-value for F statistic indicating difference by race, according to potential barrier

Barrier	White	Black	F statistic p-value
Access			
Clinic hours are not convenient	1.65 (0.91)	1.89 (1.14)	.0251
Has transportation problems	1.74 (1.04)	2.04 (1.20)	.0140
Takes too long to get appointment	1.60 (0.83)	1.85 (1.15)	.0154
Too much time spent waiting at clinic	1.80 (1.07)	2.22 (1.27)	.0006
Norms			
Parents are against birth control	1.34 (0.74)	1.50 (0.86)	.0374
Family is not supportive of using pills	1.71 (1.01)	1.99 (1.16)	.0084
Denial			
Did not think I would get pregnant	2.25 (1.33)	2.73 (1.41)	.0002
Embarrassment			
Embarrassing to buy condoms	2.13 (1.25)	1.79 (1.06)	.0036
Forced sex			
Pressured/forced to have sex	1.25 (0.60)	1.52 (0.85)	.0001
Other			
Not in sexual relationship/ having sex infrequently	1.84 (1.34)	2.39 (1.29)	.0001
Partner does not want me to use injectable	2.23 (1.18)	1.88 (1.02)	.0056
There is no clinic close to where I live	1.54 (0.80)	1.76 (1.03)	.0247
Condoms makes sex less pleasurable	2.42 (1.37)	2.04 (1.10)	.0063

*From multivariate analysis of variance. (All other p values are from univariate analyses of variance.) Note: Possible values for mean scores range from strongly disagree (1) to strongly agree (5).

insurance status and race. The rural nature of the white study participants, and the issues of privacy and confidentiality regarding contraceptive acquisition (which may be lacking in small communities), could account for some of these differences, in addition to greater acceptance of condoms among blacks.

Although education was not statistically significant when we analyzed the data by rank (in the nonparametric analysis), the summary statistics suggest that women who have attained more than a high school education were less likely to agree that discussing birth control with their partner is embarrassing or that they were too embarrassed to ask their partner to use a condom than were women with a high school education or less. This may reflect a higher degree of personal control, self-reliance and assertiveness among the more educated women. Personal characteristics such as concrete goals and long-term perspectives, autonomous decision-making, and control over one's life and body have been found to account for increased acceptance of a contraceptive implant.³⁵

A fatalistic attitude toward pregnancy is a sociocultural factor that reflects a lack of control over one's life and body. In our study, only half of the women strongly disagreed that "It doesn't matter if I use birth control or not; when it is my time to get

pregnant it will happen"—slightly smaller than the proportion found in another study that examined this question.³⁶ Infrequent contraceptive users were more likely to agree with this statement than were frequent users of contraceptives, lending support to the importance of self-efficacy and personal control for contraceptive use effectiveness.

More than one-third of respondents had not used a contraceptive method in the last six months. This finding is disturbing in a group of women who did not intend to become pregnant. A better understanding of the concept of unintended pregnancy is necessary in order to make sense of why women who do not wish to become pregnant do not use contraceptives.

Recent research documenting the discrepancy between unintended pregnancy and happiness about pregnancy³⁷ compels us to develop a better understanding about pregnancy ambivalence and motivation to prevent pregnancy through additional research.

Cost of contraceptive care is associated with a lack of satisfaction with care,³⁸ and the costs associated the hormonal injectable, the pill and condoms were noted as problems for some women studied here. A majority of respondents had no health insurance at the time of the survey, although contraceptive cost did not differentiate the women by level of insurance. Moreover, while half of the women reported working at the time of the survey, a much smaller percentage had insurance through work. The nature of many of the jobs available to these women and these jobs' lack of health insurance coverage may explain this discrepancy.

Additionally, not all insurance plans cover family planning visits or supplies, and no plans cover condoms. Although most family planning clinics provide services on a sliding-scale fee and are free to women below the federal poverty level, barriers such as waiting time for appointments and other considerations may prevent some women from utilizing these services.

A number of women agreed that they would be more likely to use the pill if it

were available over the counter and did not require a pelvic examination. In some states, women are given a three-month supply of pills before a pelvic exam is required,³⁹ so that women can be protected from pregnancy until they get a clinic appointment. The pill is available over the counter in some countries,⁴⁰ and while there are good health-related reasons to monitor women who use the pill, making it widely available without a prescription might increase its use.

Our research has a number of limitations. First, the study findings are from a small convenience sample that is specific to Missouri. Furthermore, only women who were seeking pregnancy tests at public health department clinics were surveyed. Many women use home pregnancy tests, or may not even obtain a pregnancy test, and it is possible that these women may have identified different barriers than the women who were surveyed.

Additionally, the women who came to a clinic for a pregnancy test were to some degree already in the public health system. Surveying women who do not receive health care services in health departments or family planning clinics might provide additional information about access to family planning services. A larger study sample of women from a variety of settings might also further identify additional barriers to contraceptive access and use.

The fact that we did not know the true pregnancy status of these women is another limitation. However, because none of the women in our sample had intended to become pregnant, we believe that the information supplied by this group of women is instructive for understanding potential barriers to contraceptive access and use.

Further, the exclusion of adolescents from the study sample is a limitation. Our Institutional Review Board requires parental consent for research involving persons younger than 18. This would be difficult to obtain; we observed when we pretested the questionnaire that very few minors were accompanied by a parent. We therefore decided to exclude adolescents from the study.

Women with lower levels of self-efficacy and self-esteem might not make as much of an effort to obtain contraceptives or to use them effectively, but we did not assess these psychological factors. Additional research to examine psychological or personal factors that might affect women's access to health care services or their health care-seeking behavior is recommended.

Finally, although several comparisons by contraceptive use, insurance status, ed-

educational level and race were statistically significant, statistical significance is not necessarily the same as clinical significance. For example, black women had a higher agreement score (1.49) than white women (1.33) for the statement "I don't know where to get birth control," but since both scores are in the disagreement range, this difference probably does not indicate a need for an education campaign focused on black women.

Detailed and repeated education is an ongoing need, particularly for women using hormonal methods. Many women had misconceptions or lacked an understanding of certain methods' side effects. Postpartum contraceptive education and supplies should be a high priority, particularly in view of shortened postpartum hospital stays.

Future research on barriers to family planning should include both women and men, particularly since women identified several areas where partners influence their family planning decisions. It would be helpful to expand our understanding of men's attitudes toward and knowledge of contraceptive methods, and the impact of their opinions on women's contraceptive choice and use.

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