

The Relationship Between Contraceptive Features Preferred by Young Women and Interest in IUDs: An Exploratory Analysis

CONTEXT: Little research has examined the relationship between women's preferences of contraceptive features and their interest in IUD use. Given high levels of contraceptive discontinuation and dissatisfaction, a better understanding of contraceptive preferences may support women in finding their optimal method and meeting their family planning goals.

METHODS: Data from 382 heterosexual women aged 18–29 were collected via a 2012 Internet survey. Chi-square tests and multivariate, multinomial logistic regression models were used to examine relationships between contraceptive features preferred by women and their interest in IUD use.

RESULTS: Forty-eight percent of women reported being unsure whether they would ever use an IUD; 20% were interested in using one, and 32% were not. In multivariate analyses, characteristics of a contraceptive method found positively associated with IUD interest were the method's not interfering with sexual pleasure (relative risk ratio, 3.4), being 99% effective without user action (2.5) and being effective for up to five years without any user action (3.8). Women who preferred a method that they could see or that would allow them to resume fertility immediately after discontinuation were less likely than those who did not to be interested in using rather than not using an IUD (0.4–0.5).

CONCLUSIONS: The findings of this exploratory analysis indicate that women value a multitude of contraceptive features, which may have implications for their interest in using an IUD. Future research should consider the ways that women's contraceptive preferences can be incorporated into contraceptive counseling.

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By Anu
Manchikanti
Gomez and
Jennifer B. Clark

Anu Manchikanti Gomez is assistant professor at the School of Social Welfare, University of California, Berkeley. Jennifer B. Clark is project coordinator at Palo Alto University, Palo Alto, CA.

Because IUDs are highly effective, reversible and long-acting, they are increasingly framed as contraceptive methods that can help lower persistently high rates of unintended pregnancy in the United States.¹ For young women, regardless of parity, IUDs are now considered a first-line contraceptive option.² Indeed, because the time between sexual debut and first birth has increased, young women frequently are spending the majority of their reproductive years trying to avoid pregnancy,³ which has made an IUD an appropriate option for many. The Affordable Care Act's mandate for the provision of contraceptive methods approved by the Food and Drug Administration without copayment creates an environment in which IUDs should be accessible to many women who previously did not have this option.⁴ Initiatives to promote long-acting reversible contraceptive (LARC) methods—IUDs and implants—have focused on reducing biases and increasing knowledge among providers,⁵ as well as implementing new clinical models to increase uptake.^{6,7} Training providers is critical to ensuring that all U.S. women have access to a comprehensive family planning method mix that includes IUDs, but understanding young women's perspectives is equally important to this goal.

Use of the IUD has increased significantly in recent years. In 2002, only 2% of U.S. women aged 15–44 using contraceptives relied on this method; however,

the proportion rose to 4% in 2007 and to 8% in 2009—with upticks among all groups defined by age, race and ethnicity, income and parity.⁸ In addition to barriers such as cost,⁹ and to inadequate training and knowledge among health care providers,^{10,11} an important reason why the IUD remains underutilized is women's low level of knowledge of the method. In a national survey of unmarried 18–29-year-olds, 87% of women had heard about the IUD; among those who had heard about the IUD, 39% reported knowing nothing about it, and 53% reported knowing very little.¹² Many misperceptions about the IUD exist, such as the beliefs that it increases the risk of STDs¹³ and that its insertion is a surgical procedure.¹⁴ At the same time, young women have an array of undeniable concerns about the method, including its invasiveness,^{14–16} the pain that may occur during its insertion,^{15,16} its impact on menstruation,^{15,17} and the provider-dependent nature of its use and discontinuation.^{15–17} Although increasing knowledge of IUDs is an important strategy to reduce misperceptions, even with perfect knowledge, women's preferences about contraceptive features will likely continue to have important implications for their method choice.

Women in the United States discontinue contraceptive methods at high rates because of dissatisfaction. According to an analysis of National Survey of Family Growth data, 46% of women aged 15–44 who had ever used contraceptives

reported ever discontinuing a method because they were not satisfied with it,¹⁸ among women who had used a long-acting hormonal method, 42% had discontinued because of dissatisfaction. Although reasons for dissatisfaction were available only for four methods (oral contraceptives, the injectable, the implant and condoms), women who stopped using a hormonal method most frequently reported side effects and menstrual irregularity as reasons for discontinuation. Understanding which features of contraceptives women prefer has implications not only for improving contraceptive continuation, but also for method choice. Many women may use methods that do not have characteristics that they prefer,¹⁹ which increases the likelihood that they will be dissatisfied and discontinue use.²⁰

As efforts to promote LARC uptake ramp up, it is imperative that programs and health care providers take into account women's preferences regarding contraceptive methods, which may or may not include effectiveness. To further elucidate aspects of contraceptive decision making, the present analysis investigates whether young women's contraceptive preferences are associated with their interest in using an IUD.

METHODS

Study Design and Sample

Between June and August 2012, we conducted an exploratory Internet-based survey to examine young women's and men's contraceptive use, knowledge and preferences, including their knowledge of, attitudes toward and interest in IUDs. Potential participants were recruited through social media and networks, electronic mailing lists and Craigslist, and those interested were screened via an online form. To be eligible for the survey, individuals had to reside in the United States, be between the ages of 18 and 29, and identify themselves as heterosexual. Eligible young adults who chose to participate completed an online informed consent form before beginning the survey. As an incentive, those who completed the survey were given the opportunity to enter a lottery for a \$20 gift card. The institutional review board of San Francisco State University approved the study protocol and materials.

A total of 1,154 individuals were screened for eligibility; of the 898 eligible young adults, 730 completed the survey. For this analysis, we focused on the 492 sexually experienced women who had never used an IUD. Four were pregnant and were excluded because of the small sample size. We excluded 82 women because they did not respond to questions about IUD knowledge and interest or key demographic characteristics. To restrict the sample to current candidates for an IUD, we excluded women who were currently trying to get pregnant (19), those who had been sterilized (five) and those currently using the implant (six), which resulted in a final analytic sample of 382 women.

Key Measures

Our outcome measure was women's interest in using an IUD and was based on the question "Do you think you would ever get an IUD?" Response options were "yes," "no"

and "not sure." We used the "no" response as the reference category for interpretive purposes, because comparing women who were interested versus those who were not interested was our primary research question.

The primary independent variables of interest were women's preferred contraceptive features. Women were asked to select from a list of contraceptive features those that they considered attractive. The list was based on previous research on women's experiences using contraceptive methods;^{19,21} additional items were generated by the research team to capture specific features of IUDs, such as potentially long duration of use, lack of requisite user compliance and high level of effectiveness.

On the basis of previously published studies of contraceptive behavior and unintended pregnancy,²²⁻²⁴ we included the following control variables in multivariate models: race and ethnicity (white or nonwhite), educational attainment (high school/GED or less, some postsecondary, bachelor's degree or graduate degree), relationship status (not currently involved, casually dating, in a serious relationship, or cohabiting or married), employment status and insurance status. In addition, because of the strong relationship between IUD knowledge and interest in using the method,²⁵ we included a measure of IUD knowledge, which was based on responses to 15 true-or-false questions, such as whether IUDs can become infected easily and whether a young woman can use an IUD even if she has never had a child. Items were drawn or adapted from previous surveys that assessed IUD knowledge.^{12,15,17} Respondents' level of knowledge was based on their number of correct responses: high (13-15), medium (9-12) or low (0-8). Cut points were set to evenly distribute the three categories across the full sample of respondents who answered the IUD knowledge questions. By design, women were asked early in the survey about general contraceptive characteristics they considered attractive and at the end of the survey about IUD knowledge and interest.

Analysis

We used descriptive analyses to examine demographic characteristics, IUD interest and knowledge, and contraceptive preferences. We used chi-square tests to determine differences in contraceptive feature preference across the IUD interest categories. Multivariate, multinomial logistic regression models were used to examine associations between each contraceptive feature preference and IUD interest, adjusting for demographic characteristics and IUD knowledge. We used Stata version 11.2 for all analyses.

RESULTS

Of the women in our sample, two-thirds were aged 18-24 and three-quarters were white (Table 1). Most had either some postsecondary education or a bachelor's degree (37% each); few were uninsured (15%) or unemployed (8%). Fifteen percent of women reported not being currently involved romantically, 14% were casually dating, 39%

TABLE 1. Percentage distribution of young women participating in an Internet-based survey of contraceptive use, knowledge and preferences, by selected characteristics, 2012

Characteristic	% (N=382)
Age	
18–24	64.7
25–29	35.3
Race/ethnicity	
White	77.0
Nonwhite	23.0
Educational attainment	
≤high school/GED	8.9
Some college/associate's degree/vocational	36.9
Bachelor's degree	37.4
Graduate degree	16.8
Insurance status	
Uninsured	15.2
Insured	84.8
Employment status	
Unemployed	8.1
Employed	91.9
Relationship status	
Not currently involved	14.9
Casually dating	14.4
In a serious relationship	38.5
Cohabiting /married	32.2
IUD knowledge	
Low	31.7
Medium	38.7
High	29.6
Interested in ever using an IUD	
Yes	20.4
No	31.7
Unsure	47.9
Total	100.0

Note: Level of IUD knowledge was based on respondents' number of correct responses to 15 true-or-false questions: high (13–15), medium (9–12) or low (0–8).

were in a serious relationship, and 32% were cohabiting or married. Thirty-two percent of women had low knowledge of IUDs, 39% had medium knowledge and 30% had high knowledge. Only 20% of women thought that they would ever get an IUD, whereas 32% thought that they would never get one; 48% were not sure whether they would ever use an IUD.

The feature of a contraceptive method found attractive by the greatest proportion of women (87%) was that it does not interfere with the pleasure of sex (Table 2). A majority of young women also preferred a method that could reduce the heaviness of menstrual bleeding (81%), alleviate menstrual cramps (80%), be 99% effective without their having to do anything (74%), and protect them or their partners from pregnancy and STDs (53%). Some characteristics specific to IUDs were among those least frequently selected as attractive: For example, only 18–19% of young women preferred to have a method inside their body or to have one that works for up to five years without their having to do anything.

TABLE 2. Percentage of young women who preferred selected contraceptive features

Contraceptive feature	%
Does not interfere with the pleasure of sex	86.7
Reduces the heaviness of menstrual bleeding	80.6
Alleviates menstrual cramps	79.8
Is 99% effective without user's having to do anything	73.6
Protects user or her partner from pregnancy and STDs	53.4
Can be discontinued without a provider visit	49.0
Can be used without user's worrying about running out of the method	47.1
Allows user to resume fertility immediately after discontinuation	46.3
Can be used without friends' or family members' knowledge	43.2
Can be used without a provider visit	40.6
Does not have hormones	33.3
Can be seen by the user	32.7
Does not affect menstrual cycle	23.8
Can be used without user's partner's knowledge	20.2
Is inside user's body	18.9
Works for up to five years without user's having to do anything	18.3

In bivariate analyses, the distribution of women by their interest in using an IUD differed according to preference for most individual contraceptive features (Table 3). A greater proportion of women who preferred a method that does not interfere with sexual pleasure than of those who did not reported interest in using an IUD (22% vs. 12%). Interest was also greater among women who preferred the following characteristics than among those who did not: high effectiveness without user action (23% vs. 14%), placement inside the user's body (25% vs. 19%) and long method lifespan without user action (33% vs. 18%). A lower proportion of women who preferred a method that can reduce menstrual cramping than of those who did not reported interest in ever using an IUD (19% vs. 26%). Interest also was lower among those who preferred the following characteristics than among those who did not: the ability to reduce menstrual bleeding (20% vs. 23%), discontinue without the user's having to see a provider (16% vs. 25%), resume fertility immediately after discontinuation (16% vs. 24%), be used without friends' or family members' knowledge (15% vs. 25%), be seen by the user (11% vs. 25%) and be used without the user's partner's knowledge (13% vs. 22%).

In multivariate, multinomial logistic regression analyses, the contraceptive feature found attractive by the greatest proportion of women—not interfering with sexual pleasure—was strongly and positively associated with women's being interested in ever using an IUD, rather than not being interested (relative risk ratio, 3.4—Table 4). In addition, women who valued two characteristics associated with IUDs—99% effectiveness and the ability to work for up to five years without any user action—had elevated likelihoods of reporting interest in use (2.5 and 3.8, respectively). Other contraceptive characteristics were negatively associated with interest in ever using an IUD: Women who preferred methods that allow users to resume fertility immediately after discontinuation and methods that users can see were less likely than women who did not share these preferences to be interested in ever using an IUD (0.5 and 0.4, respectively).

Several characteristics were positively associated with women's uncertainty about their ever using an IUD, rela-

TABLE 3. Percentage distribution of young women, by interest in ever using an IUD, according to contraceptive feature preference

Contraceptive feature	Inter- ested	Not inter- ested	Unsure	Total
Does not interfere with the pleasure of sex***				
Yes	21.8	28.1	50.2	100.0
No	11.8	54.9	33.3	100.0
Reduces the heaviness of menstrual bleeding*				
Yes	19.8	28.9	51.3	100.0
No	23.0	43.2	33.8	100.0
Alleviates menstrual cramps**				
Yes	19.0	28.9	52.1	100.0
No	26.0	42.9	31.2	100.0
Is 99% effective without user's having to do anything*				
Yes	22.8	27.8	49.5	100.0
No	13.9	42.6	43.6	100.0
Protects user or her partner from pregnancy and STDs				
Yes	18.6	27.9	53.4	100.0
No	22.5	36.0	41.6	100.0
Can be discontinued without a provider visit*				
Yes	15.5	31.0	53.5	100.0
No	25.1	32.3	42.6	100.0
Can be used without user's worrying about running out of the method				
Yes	21.7	28.3	50.0	100.0
No	19.3	34.7	46.0	100.0
Allows user to resume fertility immediately after discontinuation*				
Yes	15.8	37.3	46.9	100.0
No	24.4	26.8	48.8	100.0
Can be used without friends' or family members' knowledge**				
Yes	14.6	27.9	57.6	100.0
No	24.9	34.6	40.6	100.0
Can be used without a provider visit				
Yes	19.4	30.3	50.3	100.0
No	21.2	32.6	46.3	100.0
Does not have hormones				
Yes	22.1	30.7	47.2	100.0
No	19.6	32.2	48.2	100.0
Can be seen by the user**				
Yes	11.2	37.6	51.2	100.0
No	24.9	28.8	46.3	100.0
Does not affect menstrual cycle				
Yes	12.1	35.2	52.8	100.0
No	23.0	30.6	46.4	100.0
Can be used without user's partner's knowledge*				
Yes	13.0	24.7	62.3	100.0
No	22.3	33.4	44.3	100.0
Is inside user's body*				
Yes	25.0	19.4	55.6	100.0
No	19.4	34.5	46.1	100.0
Works for up to five years without user's having to do anything**				
Yes	32.9	18.6	48.6	100.0
No	17.6	34.6	47.8	100.0

*Overall distributions differ at $p \leq .05$. **Overall distributions differ at $p \leq .01$. ***Overall distributions differ at $p \leq .001$.

tive to their disinterest in ever using the method. Women who preferred a method that does not interfere with sexual pleasure were more likely than others to be unsure about,

rather than not interested in, ever using an IUD (relative risk ratio, 2.9). The likelihood of this outcome also was elevated among women who preferred a method that reduces menstrual bleeding or cramping; that can be used without partners', friends' or family members' knowledge; or that is inside the user's body (1.7–2.4).

DISCUSSION

To our knowledge, this is the first study to examine the relationship between contraceptive preferences and interest in using an IUD. Among our sample of predominantly educated and insured women, the features that were associated with IUD interest were primarily those that make the method attractive to the reproductive health community: its high level of effectiveness, the lack of requisite user compliance and its long duration of potential use.² At the same time, women who preferred a method that they can see or one that allows them to get pregnant immediately after discontinuation were less likely than others to be interested in using an IUD. Nearly half of young women in the sample were unsure if they would ever use an IUD, and in analyses adjusting for IUD knowledge, several contraceptive features were positively associated with being unsure. Making the connection between women's contraceptive preferences and the characteristics of various contraceptive methods may be an opportunity to start a dialogue about the best family planning method for these women (which may or may not be an IUD). Qualitative research that examines this uncertainty could shed further light on the considerations of young women as they choose and use contraceptive methods.

A particularly interesting finding of this study was that the contraceptive feature most frequently selected as attractive was that the method does not interfere with sexual pleasure. Women with this preference were more likely to be interested in or unsure about ever using an IUD, rather than not interested. Little research has examined sexual pleasure and women's experiences using IUDs. One qualitative study among socially advantaged and disadvantaged, urban U.S. men and women found that many participants wanted contraceptives that could increase their intimacy and closeness (i.e., physical proximity, skin contact) with their partner.²¹ In addition, women were more likely to consistently use contraceptives that “maximized sexual enjoyment—however they defined it—while minimizing sexual discomfort and interruption.”^{21(p. 1,810)} For many women who have a low risk of contracting STDs, the use of a highly effective method without a barrier method may be appealing.²⁶ At the same time, although some women and men may feel that condoms decrease sexual pleasure, others may “eroticize safety”—that is, find sex more enjoyable when they have maximized protection from disease and pregnancy.²¹ As one of the most effective contraceptives, IUDs may be particularly attractive to women who are at low risk of contracting STDs and associate safety with pleasure. However, the possible effects of some devices—for example, the increased menstrual bleeding and cramping

associated with copper IUD use—may diminish pleasure.²⁷ The impact of any method on sexual pleasure may be an important consideration for women's decision making; researchers have noted the "pleasure deficit" in efforts to promote contraceptive use and safer-sex behaviors.²⁸

Strengths and Limitations

One of the major strengths of this analysis is its inclusion of both women who believed they would use an IUD and those who were unsure. Substantively, this is an important distinction because contraceptive decision making is a continuous and nuanced process, and understanding method-specific uncertainty can provide opportunities for education and improved services, as well as help women find a method about which they have more certainty. Furthermore, the sample differs from those studied in most research on IUD knowledge, attitudes and behaviors, which frequently focuses on women in clinical settings, who are already accessing health care.^{15,29,30} Finally, findings from this study suggest that emphasizing young women's preferences and concerns during contraceptive counseling may provide them with a better opportunity to choose a contraceptive method that fulfills their needs, which is particularly important as this population is increasingly the target of IUD promotion efforts.

The analysis, however, had important limitations as well. It used a convenience sample of young women recruited via the Internet, the majority of whom were white, employed and insured, and thus likely more socially advantaged than young women most at risk for unintended pregnancy. The cultural and social network influences of these women may vary significantly from those of more diverse samples; such differences may have implications for both women's preferred contraceptive features and their IUD interest, and may limit the generalizability of these results. Though the majority of Americans have access to the Internet,³¹ the most disadvantaged young women may not have had the ability to participate in our survey or may not have been reached by our recruitment efforts.

In addition, although IUD interest is a novel variable, a more specific outcome measure (e.g., interest in a hormonal vs. copper IUD, expected timing of use) would have been informative. Because the survey was cross-sectional, we could not assess whether interest in an IUD was associated with future use. Some important variables, such as income, were not assessed because they are difficult to measure in a non-household-based survey. And although a range of contraceptive features was included, the list was not exhaustive. Furthermore, item wording may have had an impact on women's responses. For example, a woman who did not select "the method is inside my body" as attractive may not have wanted a device inside her body or may have found this characteristic neither attractive nor unattractive. Additionally, we had women select from a list of contraceptive features because of time constraints of the survey; a Likert response scale would have allowed for a more nuanced examination of preferences. Finally, although the examination of preferred

TABLE 4. Relative risk ratios (and 95% confidence intervals) from multinomial logistic regression analysis assessing the likelihood that women were interested in or unsure about, rather than not interested in, ever using an IUD, by contraceptive feature preferences

Contraceptive feature	Interested	Unsure
Does not interfere with the pleasure of sex	3.37 (1.27–8.98)*	2.89 (1.47–5.69)**
Reduces heaviness of menstrual bleeding	1.14 (0.56–2.36)	2.26 (1.23–4.18)**
Alleviates menstrual cramps	1.05 (0.52–2.09)	2.38 (1.30–4.37)**
Is 99% effective without user's having to do anything	2.51 (1.22–5.17)*	1.62 (0.96–2.73)
Protects user or her partner from pregnancy and STDs	1.08 (0.58–2.01)	1.57 (0.97–2.55)
Can be discontinued without a provider visit	0.76 (0.41–1.40)	1.43 (0.88–2.31)
Can be used without user's worrying about running out of the method	1.45 (0.79–2.66)	1.32 (0.82–2.12)
Allows user to resume fertility immediately after discontinuation	0.47 (0.25–0.88)*	0.65 (0.40–1.06)
Can be used without friends' or family members' knowledge	0.79 (0.41–1.51)	1.66 (1.02–2.70)*
Can be used without a provider visit	1.24 (0.66–2.33)	1.24 (0.76–2.02)
Does not have hormones	1.33 (0.70–2.54)	1.03 (0.62–1.72)
Can be seen by the user	0.35 (0.17–0.72)**	0.80 (0.49–1.30)
Does not affect menstrual cycle	0.48 (0.22–1.07)	0.95 (0.55–1.64)
Can be used without user's partner's knowledge	1.03 (0.42–2.51)	2.05 (1.10–3.82)*
Is inside user's body	2.19 (0.97–4.97)	2.02 (1.03–3.98)*
Works for up to five years without user's having to do anything	3.77 (1.68–8.45)***	1.93 (0.96–3.91)

*p≤.05. **p≤.01. ***p≤.001. Notes: Individual regression models were run for each contraceptive feature preference. For each model, the reference group is women who did not indicate that the contraceptive feature was one they considered attractive. All models adjusted for age, race, educational attainment, relationship status, IUD knowledge, and employment and insurance status.

contraceptive features is generally instructive, more detail would have been useful, as no contraceptives encompass all the characteristics women find attractive,¹⁹ and women must weigh their preferences to make decisions. If a tipping point exists at which certain preferences are nonnegotiable while others take less precedence, understanding and capturing this complexity will better inform programmatic and clinical efforts that aim to support women in finding their optimal family planning method.

Conclusion

While the relationship between contraceptive preferences and decision making should be further explored in research with representative or more diverse samples, the results of this study point to a number of considerations for clinical practice. Several studies have had success with the tiered effectiveness approach to counseling,^{5,7,32} in which women are given information about a range of methods in order of most to least effective. Although effectiveness is important to many women, it is not their only consideration; women may take into account factors such as pregnancy intentions,³³ relationship status³⁴ and side effects¹⁵ as they choose and use contraceptive methods. Given women's low level of knowledge of all methods of contraception,¹² providers who initiate conversations about preferred contraceptive features may create opportunities to discuss methods about which women have inadequate or inaccurate information and in a way that resonates with women's priorities. Future research should consider how discussions of contraceptive preferences could be incorporated into contraceptive counseling. Comprehensive, evidence-based information about IUDs

may change some women's interest in using them; however, it is not clear how that information might change women's preexisting contraceptive preferences if they are driven by factors beside knowledge, such as their own or their social network members' experiences with certain methods,^{35,36} their childbearing desires³⁶ or perceptions of their own ability to become pregnant.³⁷ Future research that investigates such questions among diverse samples will allow for a deeper understanding of the complexity of women's contraceptive decision-making processes and for the development of patient-centered interventions.

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Author contact: anugomez@berkeley.edu