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Women's willingness and ability to feel the strings of their intrauterine device

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Abstract

Objective—To determine how many intrauterine device (IUD) users are willing and able to palpate their IUD strings.

Methods—A cross-sectional survey was conducted among IUD users presenting for their 6-week follow-up visit after insertion at the University of Hawaii, USA, between January 2011 and January 2012. Participants were asked whether they had previously felt the strings and whether they were willing to do so during the visit. Bivariate analyses and multiple logistic regression were performed.

Results—Previous attempts to palpate IUD strings were reported by 74 (58.7%) of 126 participants, of whom 49 (66.2%) could feel the strings. At the study visit, 60 (47.6%) participants were willing to try to feel their strings; 33 (55.0%) were successful. Overall, 58 (46.0%) participants were willing and able to palpate their IUD strings at home and/or at the study visit. Fewer women who self-identified as native Hawaiian than women of other races reported previous attempts (P=0.005). Previous instruction to check IUD strings was associated with willingness to palpate them before and after controlling for native Hawaiian race (odds ratio 8.78, 95% CI 3.43–22.43; adjusted odds ratio 9.64, 95% CI 3.57–26.04).

Conclusion—Approximately half the participants were willing and able to palpate their IUD strings. Routinely counseling women to check their IUD strings could have limited clinical utility.

Keywords

Contraceptive management; Follow-up; Intrauterine device; IUD strings; Long-acting reversible contraception

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AUTHOR CONTRIBUTIONS

JM and BK conceived and designed the research project. All authors contributed to the acquisition, analysis, and interpretation of data. JM, MT, and BK drafted the manuscript. All authors critically revised the manuscript, approved the final version, and agreed to be accountable for all aspects of the work.

CONFLICTS OF INTEREST

BK was a consultant for Bayer in 2011. The other authors have no conflicts of interest.

1 INTRODUCTION

The intrauterine device (IUD) provides highly effective long-acting contraception and is the most commonly used reversible contraceptive method worldwide.[1] IUD use in the USA is increasing: an estimated 10.3% of US women using contraception chose the IUD in 2013 as compared with 3.5% in 2007.[2,3] The American College of Obstetricians and Gynecologists recommends the IUD as a first-line contraceptive option for all women, including adolescents and nulliparous women.[4] Adverse events associated with IUD use are rare and typically occur around the time of insertion. The risk of uterine perforation is approximately 1 in 1000 insertions.[5] Device expulsion is uncommon, occurring among 2%–10% of IUD users within the first year of use, and is more frequent in parous than nulliparous women.[6–8]

The US Selected Practice Recommendations for Contraceptive Use[9] state that routine follow-up after IUD initiation is not required and IUD string checks are not necessary for safe and effective use of this method. However, the prescribing information on all four US Food and Drug Administration (FDA)-approved intrauterine contraceptives instructs providers to counsel women to regularly check the IUD strings after placement and to present for evaluation if the strings are non-palpable.[10–13] Although it is not an evidence-based recommendation, many providers follow this guidance.

To our knowledge, no studies have evaluated whether women who use IUDs are willing or able to palpate their IUD strings. The primary aim of the present study was therefore to determine the proportion of women with IUDs who are both willing and able to feel their IUD strings. A secondary aim was to determine which factors are predictive of a woman's willingness and ability to check her IUD strings.

2 MATERIALS AND METHODS

The present cross-sectional study was conducted between January 1, 2011, and January 31, 2012, among women presenting for gynecologic care at University of Hawaii clinical practice sites in Honolulu, HI, USA. In the study setting, it is standard care to instruct IUD users to palpate their IUD strings monthly and to present for follow up if strings are non-palpable. At the time of the study, patients were routinely counseled to return for a follow-up visit 6 weeks after IUD insertion. Women attending this follow-up visit were eligible for the present study if they were at least 18 years old and had the IUD in place. Convenience sampling was used for recruitment with an anticipated enrollment of 100 participants during the 1-year study period. The Western Institutional Review Board approved the study (WIRB #20110013), and written informed consent was obtained from all participants before any study procedures were initiated.

Data were collected via a questionnaire administered at the clinic visit. Study personnel obtained demographic and medical data including height, weight, IUD type, and indication for IUD (e.g. contraception or heavy menstrual bleeding) from medical records. Participants self-identified race in two ways: they indicated all races they identified with, as well as the race they most identified with. Additional information, such as prior history of tampon or contraceptive ring use, was obtained by participant self-report.

Each participant was asked whether she had previously tried to feel her IUD strings and if she was successful in feeling them. Irrespective of a previous attempt or success, all women were then asked if they were willing to try to feel their IUD strings at the visit. If the participant was willing, the healthcare provider left the examination room while the patient attempted to palpate her IUD strings. After the attempt, the provider performed a speculum examination and noted whether the strings were visible and, if so, the length of the strings present outside the external cervical os. The participant's self-reported success or failure to palpate their IUD strings was recorded on the study questionnaire, as well as the length of strings outside the cervical os, as observed by the provider. Women who were unwilling to palpate the IUD strings were asked to explain why; more than one reason was permitted.

The data were analyzed using SPSS version 16.0 (SPSS Inc, Chicago, IL, USA). Fisher exact, χ^2, and Student *t* tests were used to compare the data as appropriate. $P<0.05$ was considered statistically significant.

A multivariable logistic regression model was created using backward selection with ever-attempted to check IUD strings (either before or at the index visit) as the dependent variable. The following variables were included in the model: prior contraceptive ring use, native Hawaiian race, body mass index (BMI, calculated as weight in kilograms divided by the square of height in meters), and previous instruction by a provider to check IUD strings. Predictor variables with a univariate *P* value of 0.20 or less were included in the initial model. $P<0.05$ was considered statistically significant in the final model.

3 RESULTS

During the study period, 126 women were enrolled. Most participants had a parity of at least one, were using the levonorgestrel IUD, and had the IUD inserted for contraception (Table 1). Overall, 98 (77.8%) participants recalled being told by the clinician who inserted the IUD to check their IUD strings on their own. Additionally, 80 (63.5%) women reported that the clinician who inserted the IUD allowed them to feel a sample of the IUD strings.

A previous attempt to feel the IUD strings was reported by 74 (58.7%) of the 126 women, of whom 49 (66.2%) reported success. Race and age were significantly correlated with previous attempts: fewer women of native Hawaiian race than other races (8/24 [33.3%] vs 66/102 [64.7%]; $P=0.005$), and fewer participants younger than 20 years than older participants (1/5 [20.0%] vs 73/121 [60.3%]; $P=0.044$) reported previous attempts to palpate their strings. More participants who reported being instructed to check their strings reported previous attempts (69/98 [70.4%] vs 5/22 [22.7%]; $P<0.001$; 6 participants did not respond to this question). Allowing patients to feel a sample of the IUD strings was not linked with attempts to feel the IUD strings at home (50/80 [62.5%] who felt sample attempted to feel strings vs 24/45 [53.3%] who did not feel sample; $P=0.296$).

Sixty (47.6%) of the 126 participants attempted to feel their IUD strings at the study visit, including 14 participants who had never made an attempt at home. Of these women, 33 (55.0%) stated that they could feel the IUD strings in the clinic. Overall, 58 (46.0%) of the

126 study participants were both willing and able to palpate their strings either at home and/or at the study visit.

All 126 participants had visible IUD strings on speculum examination. Length of strings, days since insertion, IUD type, and BMI did not affect ability to feel strings at the study visit (data not shown). Table 2 summarizes characteristics of study participants stratified by whether they had ever attempted to palpate their IUD strings, either before or at the index visit. Fewer native Hawaiian women than women of other races attempted to feel their IUD strings (P=0.005).

Prior contraceptive ring use, native Hawaiian race, BMI, and previous instruction by a provider to check IUD strings met the criteria for inclusion in the multiple logistic regression model exploring willingness to attempt to palpate IUD strings. Women who reported previous instruction to check their IUD strings were more likely to be willing to palpate their IUD strings before and after controlling for native Hawaiian race (odds ratio 8.78, 95% confidence interval 3.43–22.43; adjusted odds ratio 9.64, 95% confidence interval 3.57–26.04).

Overall, 38 (30.2%) participants were unwilling to attempt to palpate their strings either at home or at the study visit. Among these individuals, 17 (44.7%) reported not feeling comfortable, 5 (13.2%) were unsure what to feel for, 2 (5.3%) were concerned about infection, 1 (2.6%) was worried that the IUD would move, and 13 (34.2%) reported that they were unwilling to palpate their IUD strings for other reasons.

4 DISCUSSION

Fewer than half of all participants (46%) in the present study were both willing and able to palpate their IUD strings. These findings call into question the clinical utility of universally counseling IUD users to check their strings, as recommended on the labels of all four FDA-approved IUDs in the USA.[10–13] Adhering to the label recommendations would mean that all women who were either unwilling or unable to comply with the recommendation to routinely palpate their IUD strings (>50% of current participants) would be required to present to their providers for evaluation of IUD location. Because routine follow-up is not required after IUD initiation, this requirement might result in potential harm, such as needless patient anxiety and unnecessary clinical visits, thereby consuming healthcare system resources that could be directed toward more essential patient care.[9] An additional potential harm is the possibility of displacement of the IUD while a user attempts to palpate the strings.

The recommendation to routinely palpate IUD strings is not supported by evidence. Although all IUD labels include a recommendation for routine IUD string checks, this requirement was not evident in trials of the devices' safety and efficacy.[8,14–16] In fact, a report of the study of the contraceptive efficacy of the new 52-mg levonorgestrel-releasing IUD[8] specifically mentioned that, although information on how to check IUD strings was provided, participants were not required to routinely check their strings. Although many providers realize that women could use an IUD successfully without ever checking their

strings, some might feel that it is important to emphasize this recommendation because it is printed on the prescribing information for each device. Additionally, it is unknown whether the perception of required IUD string checks is a barrier to IUD initiation among women seeking contraception.

Palpating one's IUD strings might be valuable in the early recognition of complications, such as expulsions or perforations. However, unrecognized complications are rare: perforations occur in approximately 0.1% of IUD insertions, and expulsions are typically recognized by patients owing to symptoms such as cramping, changes in menstrual bleeding, or vaginal discharge.[5] Unrecognized expulsions are extremely rare and estimated to account for less than 1% of all expulsions.[17] Although attempting to palpate one's IUD strings, even if infrequently, might be helpful in recognizing changes that warrant additional follow-up, the present study found that approximately half of IUD users were either unwilling or unable to palpate their strings. A universal recommendation for a practice that is meant to identify a rare complication has no clinical utility if at least half of the women are unable to follow it.

One reason that women might want to feel their IUD strings is if they are interested in avoiding a physician visit for IUD removal. Some women want the ability to discontinue a birth control method on their own, and have concerns about the IUD because it requires a clinician visit for removal.[18,19] Among women who attempted IUD self-removal, 54% reported they were more likely to recommend IUD use to a friend knowing that it might be possible to remove one's own IUD.[20] A woman must be able to feel the IUD strings to be able to remove the device; thus, the present findings provide additional information for patients considering an IUD and for whom self-removal is important.

A strength of the present study is that it took place in a setting where providers routinely counsel women to perform string checks after IUD insertion and to return for follow-up if strings are non-palpable. Its limitations include a small sample size, which was a convenience sample not powered to detect differences in the rates of IUD expulsion or perforation. Additionally, the data were based on participants' self-reported willingness and ability to palpate their IUD strings. It is possible that some patients felt pressured to indicate that they had attempted or succeeded at feeling their IUD strings because they perceived this to be a favorable answer. Last, although the racially diverse study population might be viewed as a strength, the findings from this population might not be generalizable to all settings.

In summary, a considerable proportion of IUD users were unwilling or unable to palpate their IUD strings even though the strings were observable for all participants. Counseling women to routinely perform IUD string checks is therefore not a sensitive method to assess for complications. Because the risk of complications is low after an IUD has been inserted, women might be better served by being counseled to return for evaluation if they experience symptoms of complications or are dissatisfied with the contraceptive method. String checks might be considered if desired by the individual, but women should be aware that a lack of ability to palpate IUD strings is common among asymptomatic IUD users without complications.

References

1. Clifton, D., Kaneda, T. Family Planning Worldwide 2013 Data Sheet. 2013. http://www.prb.org/pdf13/family-planning-2013-datasheet_eng.pdf. Accessed January 9, 2017
2. Daniels, K., Daugherty, J., Jones, J., Mosher, W. Current Contraceptive Use and Variation by Selected Characteristics Among Women Aged 15–44: United States, 2011–2013. Hyattsville, MD: National Center for Health Statistics; 2015. National health statistics reports, no 86
3. Finer LB, Jerman J, Kavanaugh ML. Changes in use of long-acting contraceptive methods in the United States, 2007–2009. Fertil Steril. 2012; 98:893–897. [PubMed: 22795639]
4. Committee opinion no. 539: Adolescents and long-acting reversible contraception: Implants and intrauterine devices. Obstet Gynecol. 2012; 120:983–988. [PubMed: 22996129]
5. Heinemann K, Reed S, Moehner S, Minh TD. Risk of uterine perforation with levonorgestrel-releasing and copper intrauterine devices in the European Active Surveillance Study on Intrauterine Devices. Contraception. 2015; 91:274–279. [PubMed: 25601352]
6. Hatcher, RA., Trussell, J., Nelson, AL., et al. Contraceptive Technology. 20th. New York (NY): Ardent Media; 2011.
7. Madden T, McNicholas C, Zhao Q, Secura GM, Eisenberg DL, Peipert JF. Association of age and parity with intrauterine device expulsion. Obstet Gynecol. 2014; 124:718–726. [PubMed: 25198262]
8. Eisenberg DL, Schreiber CA, Turok DK, et al. Three-year efficacy and safety of a new 52-mg levonorgestrel-releasing intrauterine system. Contraception. 2015; 92:10–16. [PubMed: 25934164]
9. Curtis KM, Jatlaoui TC, Tepper NK, et al. US selected practice recommendations for contraceptive use, 2016. MMWR Recomm Rep. 2016; 65:1–66.
10. Teva Women's Health Inc. ParaGard T 380a intrauterine copper contraceptive [Prescribing information]. Sellersville, PA: 2013. http://paragard.com/Pdf/ParaGard-PI.pdf. Accessed December 20, 2016
11. Bayer HealthCare Pharmaceuticals Inc. Mirena (levonorgestrel-releasing intrauterine system) [Prescribing information]. Whippany, NJ: 2014. http://labeling.bayerhealthcare.com/html/products/pi/Mirena_PI.pdf. Accessed December 20, 2016
12. Bayer HealthCare Pharmaceuticals Inc. Skyla (levonorgestrel-releasing intrauterine system) [Prescribing information]. Whippany, NJ: 2016. https://labeling.bayerhealthcare.com/html/products/pi/Skyla_PI.pdf. Accessed December 20, 2016
13. Actavis Pharma Inc. Liletta (levonorgestrel-releasing intrauterine system) [Prescribing information]. Parsippany, NJ: 2015. https://www.allergan.com/assets/pdf/liletta_pi. Accessed December 20, 2016
14. Nelson A, Apter D, Hauck B, et al. Two low-dose levonorgestrel intrauterine contraceptive systems: A randomized controlled trial. Obstet Gynecol. 2013; 122:1205–1213. [PubMed: 24240244]
15. Sivin I, el Mahgoub S, McCarthy T, et al. Long-term contraception with the levonorgestrel 20 mcg/day (LNg 20) and the copper T 380Ag intrauterine devices: A five-year randomized study. Contraception. 1990; 42:361–378. [PubMed: 2124179]
16. World Health Organization. The TCu380A, TCu220C, multiload 250 and Nova T IUDS at 3,5 and 7 years of use–results from three randomized multicentre trials. Special Programme of Research, Development and Research Training in Human Reproduction: Task Force on the Safety and Efficacy of Fertility Regulating Methods. Contraception. 1990; 42:141–158. [PubMed: 2085966]
17. Backman T, Rauramo I, Huhtala S, Koskenvuo M. Pregnancy during the use of levonorgestrel intrauterine system. Am J Obstet Gynecol. 2004; 190:50–54. [PubMed: 14749634]
18. Asker C, Stokes-Lampard H, Beavan J, Wilson S. What is it about intrauterine devices that women find unacceptable? Factors that make women non-users: A qualitative study. J Family Plann Reprod Health Care. 2006; 32:89–94.
19. White K, Hopkins K, Potter JE, Grossman D. Knowledge and attitudes about long-acting reversible contraception among Latina women who desire sterilization. Women's Health Issues. 2013; 23:e257–e263. [PubMed: 23816156]

20. Foster DG, Grossman D, Turok DK, et al. Interest in and experience with IUD self-removal. Contraception. 2014; 90:54–59. [PubMed: 24613370]

TABLE 1

Characteristics of the study participants (n=126).

Characteristic	Value[a]
Age, y	29.4 ± 7.3
Body mass index[b]	
<25	58 (46.0)
25–30	28 (22.2)
>30	40 (31.7)
Gravidity	
0	11 (8.7)
1	26 (20.6)
≥2	89 (70.6)
Parity	
0	21 (16.7)
1	27 (21.4)
≥2	78 (61.9)
Identified as being multi-racial[c]	65 (51.6)
Race most identified with[c]	
Asian	46 (36.5)
White	26 (20.6)
Hawaiian	24 (19.0)
Other Pacific Islander	18 (14.3)
Other/unknown/refused	12 (9.5)
IUD indication	
Contraception	90 (71.4)
Heavy menstrual bleeding	4 (3.2)
Not specified	32 (25.4)
IUD type	
Levonorgestrel IUD	105 (83.3)
Copper IUD	10 (7.9)
Not specified	11 (8.7)
Time since insertion, d	
<30	24 (19.0)
30–90	35 (27.8)
>90	67 (53.2)

Abbreviation: IUD, intrauterine device.

[a] Values are given as mean ± SD or number (percentage).

[b] Calculated as weight in kilograms divided by the square of height in meters.

[c]Participants self-identified race: they identified all races they identified with, as well as the race they most identified with.

TABLE 2

Characteristics of study participants by whether they had ever attempted to feel IUD strings before or during the index visit.[a]

Characteristic	Total no. of women	Attempted (n=88)	Not attempted (n=38)	*P* value
Age, y				0.215
≤19	5	2/5 (40.0)	3/5 (60.0)	
20–30	77	57/77 (74.0)	20/77 (26.0)	
≥31	44	29/44 (65.9)	15/44 (34.1)	
Body mass index[b]				0.204
<25	58	36/58 (62.1)	22/58 (37.9)	
25–30	28	22/28 (78.6)	6/28 (21.4)	
≥30	40	30/40 (75.0)	10/40 (25.0)	
Race most identified with[c]				0.011
Asian	46	34/46 (73.9)	12/46 (26.1)	
White	26	22/26 (84.6)	4/26 (15.4)	
Hawaiian	24	10/24 (41.7)	14/24 (58.3)	
Other Pacific Islander	18	14/18 (77.8)	4/18 (22.2)	
Other/Unknown/refused	12	8/12 (66.7)	4/12 (33.3)	
Race[c]				0.005
Hawaiian	24	10/24 (41.7)	14/24 (58.3)	
Non-Hawaiian	102	78/102 (76.5)	24/102 (23.5)	
Gravidity				0.205
0	11	10/11 (90.9)	1/11 (9.1)	
1	26	16/26 (61.5)	10/26 (38.5)	
≥2	89	62/89 (69.7)	27/89 (30.3)	
Parity				0.979
0	21	15/21 (71.4)	6/21 (28.6)	
1	27	19/27 (70.4)	8/27 (29.6)	
≥2	78	54/78 (69.2)	24/78 (30.8)	
Prior Nuvaring				0.120
No	111	80/111 (72.1)	31/111 (27.9)	
Yes	15	8/15 (53.3)	7/15 (46.7)	
Prior tampon use				0.387
No	36	24/36 (66.7)	12/36 (33.3)	
Yes	90	64/90 (71.1)	26/90 (28.9)	
Instructed by provider to feel IUD strings				<0.001
No	22	7/22 (31.8)	15/22 (68.2)	
Yes	98	79/98 (80.6)	19/98 (19.4)	
No response	6	2/6 (33.3)	4/6 (66.7)	

Abbreviation: IUD, intrauterine device.

[a] Values are given as number or number/total number (percentage).

[b] Calculated as weight in kilograms divided by the square of height in meters.

[c] Participants self-identified race: they identified all races they identified with, as well as the race they most identified with.