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Beliefs and Use of Intrauterine Devices (IUDs) Among Women’s Health Care Providers

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Abstract

The unintended pregnancy rate in the United States is 50%. The intrauterine device (IUD) affords highly effective contraception, yet remains underused. An educational intervention on evidence-based IUD best practices was presented to 36 providers. IUD use rates and IUD beliefs were measured before and after the intervention, and participants answered open-ended questions. Provider beliefs favoring IUD provision ($P = < .001$) and IUD insertion rates both increased ($P = .023$) after the intervention. Content analysis revealed 3 themes. Educating women’s health care providers on IUD best practices increased their beliefs and use of IUDs. Continuing education enhances provision of the IUD, thereby reducing unintended pregnancies.

Keywords: intrauterine device; IUD; long-acting reversible contraception; unintended pregnancy; women’s health care provider beliefs

Introduction

Unintended pregnancy is a public health challenge that is both persistent and pervasive worldwide. The rate of unintended pregnancy in the United States is approximately 50%; however, among adolescent and young women, this number is much higher at 82%.¹ Moreover, women younger than 25 years have higher rates of contraception failure and pregnancy-related morbidity compared with women older than 25 years.²

Long-acting reversible contraceptive (LARC) methods, such as the intrauterine device (IUD) and implant, are highly reliable contraceptive resources that effectively address the unintended pregnancy rate. An IUD, also referred to as intrauterine contraception (IUC), is a contraceptive method placed in the uterus during an in-office procedure that remains effective for between 3 and 10 years, depending on the type of device.³ The implant is a contraceptive rod placed just under the skin of the upper portion of the nondominant arm that is effective for up to 3 years.³ LARC methods are 20 times more effective than other types of birth control method such as oral contraceptives.³

Even though the failure rates of LARC methods are less than 1%, they remain an underused method, especially for adolescent and young adult populations.^{4,5} Health care providers themselves are a large barrier to IUD use given that not all providers adhere to current IUD best practices.⁶

Background and Significance

The underuse of the IUD largely results from the lack of knowledge and misconceptions of both health care providers and the public regarding the IUD.^{7,8} Several reasons why health care providers are reluctant to use the IUD have been cited, such as the fear of complications, namely pelvic inflammatory disease, ectopic pregnancy, infertility, sepsis, and death, all of which may lead to legal ramifications.⁹ Despite the current, safe IUD options, some providers recall past issues from nearly 50 years ago when IUDs, like the Dalkon Shield in the 1970s, were linked to these complications.¹⁰

Research on the newer and current generation of IUDs has dispelled these correlations and shown that the IUD is in fact a safe contraceptive choice.¹⁰ Nevertheless, provider bias against the IUD restricts its use. The Contraceptive CHOICE Project, and other studies, found that barriers cited by women who desire and seek out a reliable birth control method include the lack of information and access to appropriate methods, specifically the IUD.^{8,11,12} In the US, only 11.8% of women currently use an IUD.¹³

Past research has demonstrated that health care providers’ lack of knowledge regarding IUD use leads to decreased access to this form of contraception.⁷ In a seminal study in California, Harper et al¹⁰ examined the knowledge and practice patterns of 816 practitioners on the use of IUDs and found that the lack of accurate practitioner beliefs led to less access and use of IUDs for patients. The providers’ beliefs negatively affected the recommendation and insertion rates of IUDs to otherwise appropriate women for this method. Harper et al¹⁰ reported that although 94% of providers agreed the IUD was safe, 40% of providers did not offer the IUD as a choice during contraceptive

counseling, and only 46% considered nulliparous women (one that has never given birth) as candidates for the IUD.

Harper et al¹⁰ concluded that the failure to translate evidence-based research into clinical practice was fueled by provider misconceptions, fears, and biases. Overall, providers with evidence-based views regarding the IUD and candidate appropriateness for this method offered more IUD counseling and provision to their patients.¹⁰ Providers need training and updated information on IUD guidelines, including education on eligibility criteria for using the IUD and on IUD adverse effects to become more proficient in the use of the IUD.¹⁰ These findings are consistent with the current literature affirming the need for provider training and updated knowledge of IUDs.^{6,14}

Health care providers' biases and long-held misconceptions on the safety of the IUD exist in practice currently.⁷ Kohn et al⁷ examined the likelihood of providers to recommend the IUD to patient groups and reported that only 58% of providers would recommend the IUD to nulliparous women and that only 55% would recommend the IUD to women younger than 20 years. Further, approximately 70% of providers would not recommend the IUD to a woman with a past or recent history of a sexually transmitted disease, pelvic inflammatory disease (PID), ectopic pregnancy, or if they were nonmonogamous.⁷ Kohn et al⁷ reported that 25% of the providers were unlikely to recommend the IUD to nulliparous women even though 86% knew that the IUD was safe as a contraceptive option for this population.

Similarly, Biggs et al¹⁴ reported that of the 587 surveyed providers caring for women in California, 20% would not recommend the IUD to any woman who was adolescent or nulliparous or to women who have had a past sexually transmitted infection, PID, or ectopic pregnancy.¹⁴ They concluded that providers are not practicing congruent with professional IUD guidelines and reinforced the continued need to inform providers on IUD best practices.¹⁴ Evidence-based practice supports that adolescent and nulliparous women, women who have been treated for a past sexually transmitted infection or have had a history of ectopic pregnancy or PID are in fact candidates for an IUD with the appropriate screening and counseling.¹⁴ Ongoing provider training has been found to increase IUD best practices and use.¹⁵

Purpose

This current study evaluated women's health care providers' utilization rates of IUDs, beliefs that favor IUD provision, and barriers and facilitators to IUD best practice. Data were collected before and after an educational intervention and IUD policy presentation.

Methods

This quasi-experimental study took place in 6 different women's health offices in Connecticut from 2017 through 2018. The study included an educational intervention for women's health providers on IUD best practices delivered by the first author. The intervention incorporated the presentation of an IUD policy, adapted from the publicly available Reproductive Health Access Project.¹⁶

The Fairfield University Institutional Review Board approved the study. A convenience sample was obtained through a network of women's health practices in Connecticut. Snowball sampling was also used. Licensed, board-certified women's health providers were emailed to invite them to participate in the IUD educational sessions. Once a date was confirmed between the first author and the providers, follow-up email reminders were sent 1 month before the study occurred and again 1 day before each educational session. The inclusion criteria for participation in the study was being an English-speaking board-certified women's health provider, such as an advanced practice nurse, certified nurse midwife, physician assistant, or physician, with at least 1 year of practice experience. The study excluded office staff and medical assistants.

Intervention

The first author, a board-certified, licensed nurse midwife, conducted 12 educational sessions. Each provider attended 1 session and completed a pretest and posttest to assess beliefs that favor IUD provision before and after the education. All sessions contained the same content, which included the appropriate candidates and indications for an IUD. The content incorporated IUD use in regards to PID, sexually transmitted infections, and history of ectopic pregnancy, common topics subject to misconceptions. Research has demonstrated that regardless of the timing of *Neisseria gonorrhoeae* (NG)/*Chlamydia trachomatis* (CT) screening, a woman's risk of PID is less than 1% and that PID is caused by NG or CT, not the IUD.¹⁷ Women with a history of ectopic pregnancy are still eligible for an IUD should they make an informed choice for this method, and this content was taught to providers as well during the educational sessions.

The IUD educational session content included the 2012 American College of Obstetrics and Gynecology's (ACOG) LARC Program Slide Set that has since been updated to a video series.³ Given this update, the IUD slide set used for our educational intervention is no longer publicly available. However, the LARC Program Video Series, which is free and publicly available for viewing, is consistent with the LARC Slide Set we used for this intervention.³ The IUD policy, adapted from the publicly available Reproductive Health Access Project,¹⁶ was presented in the educational sessions as well. This policy detailed the procedure for outpatient placement of an IUD. The IUD education was offered in an objective, noncoercive manner presenting factual IUD best practices.

The educational sessions were held in the provider break/lunch rooms of health care offices and scheduled according to the providers' preference. The convenience sample included 36 providers from 6 different practices. The largest session included 6 providers and the smallest included 1 provider. Each session lasted approximately 1 hour, including the provision of informed consent, completion of a demographic sheet, educational program, and a pretest

and posttest, The Beliefs That Favor IUD Provision Scale.¹⁴

The Beliefs That Favor IUD Provision Scale, used with permission from the author, has a Cronbach α of 0.73 and consists of a 9-item Likert scale.¹⁴ The scale's author recommended that the option "No Opinion," be modified to "Neither Agree or Disagree"; this change was made before implementation of the study. This scale has 6 negative items that are reverse-coded and added to 3 positive items, which calculate a mean total score from 0 to 4.¹⁴ Higher total scores indicate a greater likelihood for favoring and using the IUD in clinical practice. Two examples of the negative items on the scale are: (1) IUC/IUDs increase the risk of pelvic inflammatory disease (PID) and (2) An IUC/IUD patient diagnosed with PID should have her IUC/IUD removed in order to treat her PID.¹⁴ Two examples of the positive items on the scale are: (1) The IUC/IUD is safe, and (2) An IUC/IUD can be inserted immediately after a woman has an abortion.

Participants were additionally asked to answer 3 open-ended questions at the conclusion of the intervention to assess the facilitators and barriers to implementation of IUD best practices and the IUD policy presented. The IUD utilization rates of each provider were collected using a medical record review in which billing codes for IUD insertions 2 months before and 2 months after the education intervention were analyzed.

Quantitative Data Analysis

The data obtained from the demographic sheets, The Belief That Favor IUD Provision scores, and the IUD insertion rates before and after the intervention were entered in SPSS 21 software (2012; IBM, Armonk, NY) and reviewed for accuracy. Statistical analysis included matched paired *t* tests on each participant for their beliefs that favor IUD provision scores and their IUD insertion rates before and after the intervention.

A sample size of 34 was needed to detect a change in provider beliefs that favor IUD provision and use of the IUD with a 2-sided 5% significance level and a power of 80%.^{16,18} Parametric analysis was performed to assess the effect of the educational intervention on participant's (N = 36) beliefs that favor IUD provision and IUD use before and after the educational intervention. A matched paired *t* test was conducted on data for the sample (N = 36) to determine whether provider IUD beliefs varied as a function of the educational intervention. In addition, a matched paired *t* test was conducted on data for 34 of the participants (data for 2 participants were not available) to determine whether provider IUD use varied as a function of the educational intervention.

Qualitative Data Analysis

For the qualitative data analysis, field notes and content analysis of the 3 open-ended questions provided insight into the provider's perception of facilitators and barriers of the use of IUD best practices.¹⁹ We anticipated that short written responses rather than robust ones might be given by the providers; therefore, the first author took field notes while listening to the providers' conversations surrounding these questions and used them during the qualitative data analysis.

The Krippendorff method of clustering the participants' responses that shared qualities and could be grouped together was followed.¹⁹ Using the Krippendorff method, we decided to report thematic units given the richness of describing the data in this way.¹⁹ We undertook a qualitative analysis individually and kept an audit trail of the process. The same 3 themes were reached by both of us, thereby increasing the rigor of the analysis.

Results

Quantitative

A convenience sample of 36 women's health care providers participated in this study. The sample consisted of largely female (75%), white (83%) providers older than 34 years (89%). Eighty-nine percent (n = 32) of the sample had at least 5 years of health care experience, with 53% of the participants (n = 19) having more than 20 years of experience. The sample consisted of 24 physicians, 11 certified nurse midwives (CNMs), and 1 advanced practice registered nurse (APRN), a women's health nurse practitioner (WHNP). All of the CNMs held a Master of Science, and 2 CNMs held both CNM and WHNP credentials. The [Table](#) contains further demographic information of the sample.

Table Women's Health Provider Characteristics

Demographic information	No. (%)
	(N = 35 36)
Sex	
Male	9 (25)
Female	27 (75)
Age, y	n = 35

25-35	4 (11)
35-45	8 (23)
45-55	8 (23)
55-65	10 (29)
≥65	5 (14)
Race/ethnicity	n=35
African American	0
Asian	3 (1)
White	29 (83)
Hispanic	0
Asian/African American	1 (.03)
Other	2 (.06)
Education	
Masters	10 (28)
Doctorate	22 (61)
Other	4 (11)
Years of experience	
1-5	4 (11)
5-10	4 (11)
10-20	9 (25)
>20	19 (53)
Degree type (all that apply)	
DO/MD	24 (67)
CNM	9 (25)
APRN	3 (1)
DNP	0
PhD	0
PA	0

Provider beliefs that favored IUD provision were significantly higher on the postsurvey, (mean, 3.1; standard deviation [SD], 0.40) than the presurvey (mean, 2.8; SD, 0.41; $t_{35} = -7$; $P < .001$; [Figure 1](#)). An electronic medical record query used billing codes to assess the number of IUD insertions by each provider in the 2 months preceding and again in the 2 months after the intervention. IUD use data for 2 participants were unavailable; therefore, these 2 physicians were not included in this portion of the study. Provider IUD use did significantly increase after the educational intervention (mean, 7.0; SD, 4.7) compared with IUD use before the intervention (mean, 5.3; SD, 4.2; $t_{33} = -2.38$; $P = .023$; [Figures 2 and 3](#)).

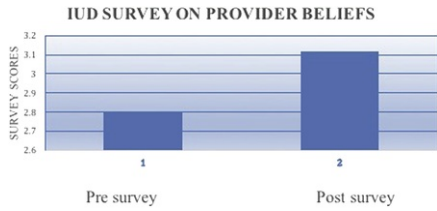


Figure 1 Presurvey and postsurvey scores. $P < .001$.

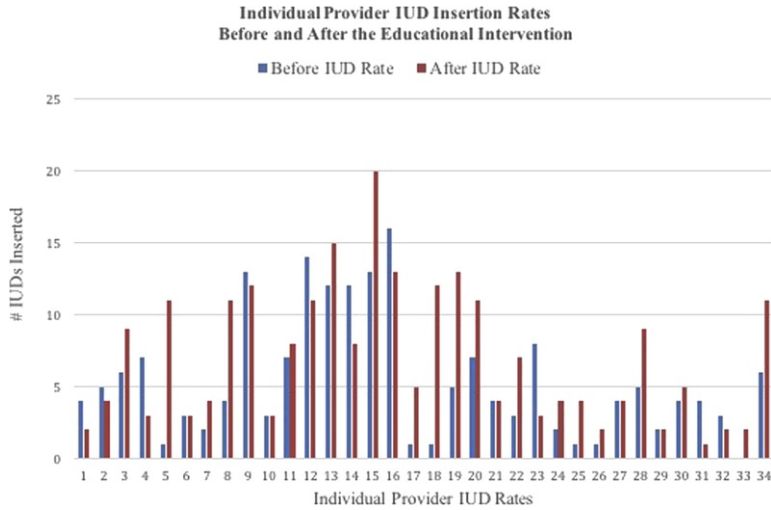


Figure 2 Individual provider intrauterine device (IUD) insertion rates before and after the intervention.

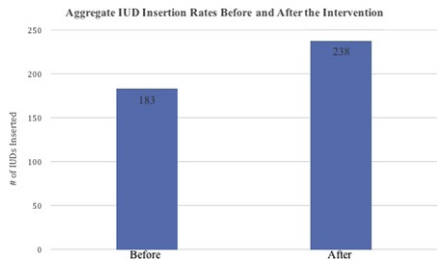


Figure 3 Aggregate intrauterine device (IUD) insertion rates before and after the intervention. $P = .023$.

Qualitative

Approximately half of the participants ($n = 20$) answered some or all of the qualitative questions. Content analysis revealed 3 themes.¹⁹ The unit of analysis was discussion of barriers and facilitators to IUD use. We independently clustered the data, forming 3 themes each, and had consensus on the themes.

Theme 1 "Already doing it." Providers felt that they were, "already doing it" and would keep using the IUD, and this theme represents a facilitator to IUD use.

Of the 20 providers, 13 felt they were already adhering to the IUD guidelines and evidence-based practice and would continue to do so. Additional facilitators providers identified were having IUD models and handouts in both the examination rooms and waiting rooms of their offices. They also identified that educating their support staff (medical and clinical assistants) to help provide accurate support and information to patients at the start of visits is a facilitator to IUD use.

Theme 2 “Patient resistance/Internet horror stories” This theme relates to the barriers of IUD use that providers discussed. Providers identified that patient resistance occurs largely due to “Internet horror stories” that their patient has read online.

Despite providing accurate evidence-based information on the IUD to the patient, several providers said the Internet and social media stories the patient has read prevail, and the patient does not want to consider an IUD when seeking contraceptive options. Several providers verbalized that younger patients, their mothers, or both, were hesitant to try the IUD due to a lack of accurate information and beliefs they personally held about the IUD.

Theme 3 “Concrete ways my practice will change.” Providers offered ways in which the IUD education they received would impact their practice. Specifically, 2 providers reported they would incorporate the IUD policy in their office, 2 providers stated they would offer the IUD to all appropriate patients, and 2 providers identified they now understand they have the ability to perform an endometrial biopsy with an IUD in place or to place an IUD immediately after delivery or after termination of pregnancy. They had learned of new categories of women who are eligible for this contraceptive method from the education intervention.

Discussion

Educating providers on IUD best practices increased their beliefs that favor IUD provision and their use of the IUD. Even though women’s health care providers received educational content on IUDs during their training, this study highlights the importance of continuing education on IUD best practices as a means to increase women’s access to this contraceptive method.

The IUD is an effective contraceptive method that is currently underused by providers who hold invalid beliefs; however, these providers’ can enhance their knowledge through continuing education.⁶ This current study confirms the findings of Thompson et al¹⁵ that measured the positive effect of provider LARC education and reinforces the need for continued training to translate best practices into clinical practice. Our educational intervention yielded an increase in provider beliefs that favor IUD provision and in providers’ IUD use, echoing other research findings.¹⁵ Increasing provider knowledge and beliefs that favor IUD provision can enhance provider’s recommendation and use of the IUD, thereby decreasing the number of unintended pregnancies.

Although clinical studies have confirmed the safety of the IUD, outdated providers’ beliefs create barriers for its recommendation and use.⁶ Likewise, women cite the lack of information and access to the IUD.^{8,11} Providers current on best practices are able to facilitate IUD provision through patient education, dispelling myths, and recommending the method.¹¹ Providers have a professional responsibility to present women with comprehensive, accurate information from which women can make an informed decision regarding their contraception.

The qualitative analysis adds an important element that providers must work to dispel the myths patients or their parents, or both, may be finding on the Internet or through social media posts. Having patient handouts that specifically address and dispel these myths would be helpful in clinical practice. The qualitative analysis further supports the literature that providers who have previously been trained in IUD best practice learned new information from this current study’s intervention about the eligibility of women for the IUD. These providers clearly stated that they would put this new information into their own clinical practice.

This current study also supports the work by Philliber et al⁶ emphasizing that the need also persists for ongoing provider IUD education for both women’s health providers and providers of various health care disciplines. The new LARC Program Video Series offered by ACOG is a valuable resource for the ongoing training and updating on IUD best practices for all disciplines.³ Updating multidisciplinary provider beliefs to current IUD best practices will afford all populations of women access to appropriate contraception and decrease the rate of unintended pregnancy.

Limitations

Limitations of the study surround the sample and scant qualitative data. Fifty-three percent of the sample possessed more than 20 years of experience, and 29% were older than 54. It is plausible that the sample reflects the target population in need of IUD education, given changes in IUD use over the years. Replication of this study with providers who are fewer than 10 years into their practice can clarify this potential limitation. Further limitations include a fairly homogenous sample of women’s health care providers practicing in 1 New England state. Most the sample was white and female.

Qualitative data were scant due to more conversation among the providers than written responses (which field notes did help account for). However, there were several nonresponses to the open-ended questions, which limited the depth of this portion of this study.

Lastly, the 2016 Presidential election and resultant potential for a repeal of the Affordable Care Act, which includes contraceptive coverage, occurred just before the start of this study. As a result, there may have been an upswing in the number of women seeking IUDs at the time of this study. Therefore, a conceivable historical bias exists given the timing this study; however, no recent studies are available to confirm or refute this theoretical bias.

Implications for Clinical Practice

Applying evidence-based IUD best practices to the clinical arena is paramount in the provision of the IUD. Current guidelines state that the IUD may be inserted without a known NG/CT status and remain in place during the

treatment of a sexually transmitted infection or PID as long as the women desires to continue use and responds to treatment.^{17,21} The Centers for Disease Control and Prevention reports that NG and CT are the main causative agents for PID; **CT** is considered cured 1 week after treatment with a 1-time 1-g dose of azithromycin. Screening for NG/CT may be done at the same time as the insertion for high-risk patients.^{17,21}

Most women are candidates for the IUD.^{21,22} Provider suggestion and appropriation is supported in the literature and corroborated by the governing bodies for women's health such as the ACOG.³ Educating providers of adolescent and young women, particularly pediatric and primary care providers, on the use of LARCs as the recommended contraceptive for this population is imperative.²⁰ Guzzo and Hayford²³ emphasize that the foundation of women's long-term contraceptive decision making is established in adolescence, often facilitated by their health care provider. Providers rendering care to women have an obligation to stay current on contraceptive best practices, particularly LARC, and educate and offer women an appropriate method through shared decision making.

Implications for Future Research

Future research is needed on IUD best practices for other disciplines providing care to women, including pediatric health care and family practice providers. Replication of this study is warranted in various regions around the US to compare trends and differences of IUD use. In 2019, ACOG replaced the LARC Slide Set with a LARC Video Series; this updated, free tool would be used in the replication of this study, provider training, and dissemination of IUD best practices.³

Conclusion

Unintended pregnancy remains a current public health issue in the US. Although most women are candidates for the IUD, they may not be offered the IUD as a contraceptive option due to the lack of evidence-based beliefs of health care providers.¹¹ Continuing research on provider education on the evidence for translation into clinical practice is warranted. Dissemination and replication of this study are encouraged to update various disciplines of women's health providers, particularly providers of adolescent and young women, on IUD best practices. The IUD is a safe and effective contraceptive method, suitable for most women.²¹ This study demonstrated that educating providers on IUD best practices enhanced the provision of the IUD, thereby decreasing women's unintended pregnancy rate.

Uncited References

18,20

References

1. P.S. Lotke, Increasing use of long-acting reversible contraception to decrease unplanned pregnancy, *Obstet Gynecol Clin North Am* **42** (4), 2015, 557-567, <https://doi.org/10.1016/j.ogc.2015.07.008>.
2. J. Krashin, J.H. Tang, S. Mody and L.M. Lopez, Hormonal and intrauterine methods for contraception for women aged 25 years and younger, *Cochrane Database Syst Rev* **2015** (1), 2015, 1-41 <https://doi.org/10.1002/14651858.CD009805.pub3>.
3. American Congress of Obstetricians and Gynecologists, The Long-acting Reversible Contraception (LARC) Program: LARC Video Series, <https://www.acog.org/About-ACOG/ACOG-Departments/Long-Acting-Reversible-Contraception/LARC-Video-Series>, Accessed 18 March 2019.
4. K. McClellan, H. Temples and L. Miller, The latest in teen pregnancy prevention: long-acting reversible contraception, *J Pediatr Health Care* **32** (5), 2018, e91-e97 <https://doi.org/10.1016/j.pedhc.2018.02.009>.
5. C. Zeal, J.A. Higgins and S.R. Newton, Patient-perceived autonomy and long-acting reversible contraceptive use: a qualitative assessment in a Midwestern, university community, *Biores Open Access* **7** (1), 2018, 25-32 <https://doi.org/10.1089/biores.2017.0037>.
6. A.E. Philliber, H. Hirsch, C.D. Brindis, R. Turner and S. Philliber, The use of ACOG guidelines: perceived contraindications to IUD and implant use among family planning providers, *Matern Child Health J* **21** (9), 2017, 1706-1712 <https://doi.org/10.1007/s10995-017-2320-1>.
7. J.E. Kohn, J.G. Hacker, M.A. Rousselle and M. Gold, Knowledge and likelihood to recommend intrauterine devices for adolescents among school-based health center providers, *J Adolesc Health* **51** (4), 2012, 319-324 <https://doi.org/10.1016/j.jadohealth.2011.12.024>.
8. G.M. Secura, J.E. Allsworth, T. Madden, J.L. Mullersman and J.F. Peipert, The Contraceptive CHOICE Project: reducing barriers to long-acting reversible contraception, *Am J Obstet Gynecol* **203**, 2010, 115.e1-e7 <https://doi.org/10.1016/j.ajog.2010.04.017> [https://fairfield.primo.exlibrisgroup.com/discovery/fulldisplay?docid=sciversesciencedirect_elsevierS0002-9378\(10\)00430-](https://fairfield.primo.exlibrisgroup.com/discovery/fulldisplay?docid=sciversesciencedirect_elsevierS0002-9378(10)00430-)

9. N. Anderson, J. Steinauer, T. Valente, J. Koblentz and C. Dehlendorf, Women's social communication about IUDs: a qualitative analysis, *Perspect Sex Reprod Health* **46** (3), 2014, 141-148 <https://doi.org/10.1363/46e1814>.
10. C.C. Harper, M. Blum, H. Thiel de Bocanegra, et al., Challenges in translating evidence to practice: the provision of intrauterine contraception, *Obstet Gynecol* **111** (6), 2008, 1359-1369 https://journals.lww.com/greenjournal/Fulltext/2008/06000/Obstetrician_Gynecologists_and_the_Intrauterine.17.aspx, Accessed 21 March 2019.
11. A.M. Gomez and B. Freihart, Motivations for interest, disinterest and uncertainty in intrauterine device use among young women, *Matern Child Health J* **21** (9), 2017, 1753-1762 <https://doi.org/10.1007/s10995-017-2297-9>.
12. J.A. Higgins, R.D. Kramer and K.M. Ryder, Provider bias in long-acting reversible contraception (LARC) promotion and removal: perceptions of young adult women, *Am J Public Health* **106** (11), 2016, 1932-1937, <https://doi.org/10.2105/AJPH.2016.303393>.
13. M.L. Kavanaugh and J. Jerman, Contraceptive method use in the United States: trends and characteristics between 2008, 2012 and 2014, *Contraception* **97** (1), 2018, 14-21 <https://doi.org/10.1016/j.contraception.2017.10.003>.
14. M.A. Biggs, C.C. Harper, J. Malvin and C.D. Brindis, Factors influencing the provision of long-acting reversible contraception in California, *Obstet Gynecol* **123** (3), 2014, 593-602, <https://doi.org/10.1097/AOG.000000000000137>.
15. K.M. Thompson, C.H. Rocca, L. Stern, et al., Training contraceptive providers to offer intrauterine devices and implants in contraceptive care: a cluster randomized trial, *Am J Obstet Gynecol* **218** (6), 2018, 597.e1-e7 <https://doi.org/10.1016/j.ajog.2018.03.016>.
16. Reproductive Health Access Project, Policy and procedure for IUDs, <http://www.reproductiveaccess.org/resource/iud-policy-procedure>. March 21, 2015, Accessed 18 March 2019.
17. Centers for Disease Control and Prevention, 2015 Sexually Transmitted Diseases Treatment Guidelines, <https://www.cdc.gov/std/tg2015/default.htm>, Accessed 21 March 2019.
18. F. Faul, E. Erdfelder, A.G. Lang and A. Buchner, G*Power 3: a flexible statistical power analysis program for the social, behavioral, and biomedical sciences, *Behav Res Methods* **39** (2), 2007, 175-191 <http://www.gpower.hhu.de/en.html>, Accessed 12 March 2018.
19. K. Krippendorff, Content Analysis. An Introduction to Its Methodology, 4th ed., 2019, Sage Publications; Thousand Oaks, CA.
20. N. Saldanha, Use of short acting reversible contraception in adolescents: the pill, patch, ring, and emergency contraception, *Curr Probl Pediatr* **48** (2), 2018, 333-344 <https://doi.org/10.1016/j.cppeds.2018.11.003>.
21. K.M. Curtis, T.C. Jatlaoui, N.K. Tepper, et al., U.S. Selected Practice Recommendations for Contraceptive Use, 2016, *MMWR Recomm Rep* **65** (4), 2016, 1-66 <https://doi.org/10.15585/mmwr.rr6504a1>.
22. K.M. Curtis, N.K. Tepper, T.C. Jatlaoui, et al., Centers for Disease Control and Prevention. U.S. medical eligibility criteria for contraceptive use, 2016, *MMWR Recomm Rep* **65** (3), 2016, 1-104.
23. K.B. Guzzo and S.R. Hayford, Adolescent reproductive and contraceptive beliefs and attitudes and adult contraceptive behavior, *Matern Child Health J* **22** (1), 2018, 32-40 <https://doi.org/10.1007/s10995-017-2351-7>.

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Highlights

- The intrauterine device (IUD) is a safe and effective contraceptive method, suitable for most women.
- Women's health care providers' hold misconceptions about the IUD, which can be corrected with updated education on eligibility criteria for the IUD.

- Ongoing health care provider education on the best practices of the IUD allows more women to be offered this contraceptive choice.
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Queries and Answers

Query: If there are any drug dosages in your article, please verify them and indicate that you have done so by initialing this query

Answer: CPE

Query: The journal uses an unstructured abstract. Please review the changes and adjust as appropriate.

Answer: ok, thank you

Query: The journal follows AMA style and the P value cannot = 000. The P value is changed to <.001. Please confirm this is okay or provide the actual P value.

Answer: ok, thank you

Query: Because "CHOICE" is in all capital letters, this is assumed to be an acronym. If so, please provide an expansion.

Answer: It is not an acronym. This is how the researchers of that study refer to the study: Contraceptive CHOICE Project (CHOICE). It does not stand for anything, thank you.

Query: "New England State" is replaced with "Connecticut." If this is not the correct state, then adjust as appropriate.

Answer: yes, appropriate

Query: If Fairfield University is not the institution that approved the study then adjust as appropriate.

Answer: that is correct, thank you

Query: Ref 18 is not cited in the text. Please provide a citation for ref 18 so that it is in consecutive order with 19 or renumber the references as needed in the text and reference list so they are cited in consecutive order

Answer: I have amended the citation, delete 16 and add 18

Query: The numbers in parenthesis for the *t* test are assumed to be the degrees of freedom and are subscript per AMA style. If so, the value for the *t* test appears to be missing. Please confirm the *t* test statistic is shown correctly as is or adjust as appropriate.

Answer: mean, 2.8; SD, 0.41; $t_{35} = -5.88$, $P < .001$

Query: "Theme 4" here was assumed to be a typo and is changed to "Theme 3"

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Answer: I added the missing citation, thank you.

Query: Ref: Note that accessed dates and journal website addresses are not required if the doi and access is available through PubMed.

Answer: Thank you!

Query: The Table was not created using the Table tool and had to be redone. Please check that all data are shown on the correct data row.

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Answer: Yes

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Answer: Thank you

Attachments: JNP Revised Figure 1 Survey.jpg, JNP Revised Figure 2 Individual IUD Rates.jpg, JNP Revised Figure 3 Aggregate IUD Rates.jpg

Query: Note that journal follows AMA style and "utilization" is changed to "use" except in the case of "utilization rate" and "usage" is changed to "use" as well per AMA style.

Answer: ok, thank you