

The Intimate Link: A Systematic Review of Highly Effective Reversible Contraception and Women's Sexual Experience

JESSICA N. SANDERS, MSPH,* NICOLE K. SMITH, PhD,
MPH,† and JENNY A. HIGGINS, PhD, MPH‡

**Department of Obstetrics and Gynecology, University of Utah, Salt Lake City, Utah; †Office of Population Research, Princeton University, Princeton, New Jersey; and ‡Department of Sex and Women's Studies, University of Wisconsin-Madison, Madison, Wisconsin*

Abstract: Contraception is expressly designed for nonprocreative sexual activity, but we know little about how methods shape women's sexual experience. To systematically review the literature on highly effective reversible contraception (HERC) and sexual experiences. MEDLINE, SCOPUS, and Google Scholar were searched for relevant literature. Eleven studies met the inclusion criteria; all were conducted outside of the United States. All studies reviewed found either improvements or no change in sexual experience and function outcomes with HERC use. A need exists for more prospective studies with a wider

range of measures to assess HERC methods' impact on women's sexual experiences.

Key words: systematic review, highly effective reversible contraception, IUD, implants, sexual experience, sexual function

Introduction

In the United States, 51% of pregnancies are characterized as either unwanted or mistimed,¹ and about 40% of these pregnancies end in abortion.² A disproportionate number of these unintended pregnancies occur among women who are socially and economically disadvantaged.³ Unintended pregnancies can have immediate and long-term social and financial costs—they can undermine

Correspondence: Jessica N. Sanders, MSPH, Department of Obstetrics and Gynecology, University of Utah, Rm 2B200, Salt Lake City, Utah. E-mail: jessica.sanders@utah.edu

The authors declare that they have nothing to disclose.

educational and professional trajectories and fuel patterns of poverty.^{4,5} Increased use of highly effective, reversible, user-independent contraceptive methods could significantly reduce the rate of unintended pregnancy.^{6,7} Highly effective reversible contraception (HERC) includes intrauterine devices (IUDs) and contraceptive implants. IUDs have been on the market in the United States since the mid-1960s and implants since the early 1980s.⁸ Only 8.5% of contraceptive users in the United States rely on HERC methods: 7.7% IUD and 0.8% contraceptive implant.⁹ American women use HERC at much lower rates than those in the United Kingdom (11%), Sweden (21%), France (23%), Norway (27%), and China (41%).^{9,10}

In 2005, the American Congress of Obstetricians and Gynecologists (ACOG) updated their recommendations to support HERC as “first-line” contraceptive methods for all women who wish to prevent pregnancy irrespective of age or parity.¹¹ However, despite these evidence-based recommendations, HERC has been especially slow to gain popularity with nulliparous women (as of 2009, only 2.1% were using IUDs), unmarried women (5.7%), and women with less than college degrees (<8%).⁹ To increase the uptake of HERC in the United States, family planning researchers and practitioners need to better understand women’s affinity for HERC methods and think in critical new ways about contraceptive acceptability, patient centered outcomes, and contraception promotion in the context of a complex and changing American culture.

Although contraception is expressly designed for nonprocreative sexual activity, we know little about how methods shape women’s sexual lives. Women’s sexual experiences while using birth control may affect both contraceptive satisfaction¹² and continuation rates.¹³ Sanders et al¹⁴ found that sexual side effects were the best predictors of discontinuation of oral contraceptives (OC) among heterosexual adult women.

In-depth interviews with 30 couples in the United States found that users tolerated general side effects better than sexual side effects; they also inconsistently used and more frequently discontinued methods such as condoms that were “perceived as a threat to pleasure” compared with hormonal contraception, which may have had more general side effects.¹⁵

Contraceptive options empower both women and men during their reproductive years by giving them the agency to enjoy sex and develop healthy sexual relationships, while reducing the risk of unplanned or mistimed pregnancy. Oftentimes, contraceptive research delivers a myopic view of reproductive health by focusing solely on pregnancy prevention, rather than exploring the psychosexual environments of the individuals who are the consumers of contraception. Previous reviews have examined the use of contraception and sexuality,¹⁶ condoms and sexuality,¹⁷ and hormonal contraception and sexual desire^{18,19} but a synthesis of the research on HERC and sexuality is needed. This review aims to systematically examine and describe the currently available literature addressing IUDs’ and implants’ associations with women’s sexual experience. The review serves to assess the relative strengths and weaknesses of the literature and evaluate the need for additional research that focuses specifically on HERC and women’s sexual experience. Thus, before presenting the results of the systematic review, this manuscript will first address some critical concepts relating to the broader context of sexual health and sexuality.

SEXUAL HEALTH

The World Health Organization (WHO) defines sexual health as “a state of physical, emotional, mental, and social well-being in relation to sexuality; not merely the absence of disease, dysfunction, or infirmity.”²⁰ Sexuality is multifaceted and influenced by social, cultural,

biological, psychological, ethical, historical, political, economic, and religious factors. Sexuality can involve but is not limited to thoughts, desires, attitudes, and behaviors.²⁰ This ecological view of sexual health and sexuality needs to be incorporated into research surrounding contraception.

Sexual satisfaction is an essential component of sexual health. It is intrinsically linked to sexual functioning, relationship satisfaction, physical pleasure, and overall quality of life. MacNeil and Byers²¹ define sexual satisfaction as “not just physical pleasure, nor the absence of dissatisfaction or problems, but rather the overall feeling of the sexual relationship.” A recent study used a qualitative approach in defining sexual satisfaction by asking 449 women and 311 men how they would “define sexual satisfaction.” Two main themes emerged: an individual dimension focused on positive sexual experiences of the self and a dyadic dimension focused on aspects of the individuals’ interaction with their sexual partner.²² These findings reinforce the notion that sexual satisfaction is associated with positive experiences rather than just the absence of dysfunction or conflict²² and is often assessed in relation to the partnered experience.^{23,24}

MEASURES OF SEXUALITY

Sexuality encompasses a wide range of experiences, from physiological functioning and sensation to broader satisfaction with one’s sexual self and life.²³ Immediate aspects of sexual functioning include a woman’s desire for sexual activity, her ability to begin and sustain arousal, produce sufficient vaginal lubrication, experience orgasm, enjoy the actual sensation of sexual activity, and minimize discomfort or sexual pain. Less direct aspects of sexuality include sociocultural factors, partner factors, and individual factors. Sociocultural factors such as norms, peer groups, and religion may influence sexuality as well as

contraceptive use. Partner factors, including relationship status and a partner’s sexual functioning, may also affect a woman’s sexual experience.²⁵ Individual aspects such as age,^{26,27} hormonal factors,²⁸ attitudes,²⁹ pregnancy status,^{30,31} STIs,³² and overall health status^{33,34} also have sexual function implications. Finally, seemingly nonsexual factors, which can be directly impacted by contraception such as changes in bleeding patterns,³⁵ mood,^{36,37} weight,³⁸ or breast size and tenderness could also impact a woman’s sexual behaviors and well-being.

To appropriately review the literature, readers need a foundational understanding of female sexual functioning as well as the common measures used in sexual functioning research. Much of the current research focuses on female sexual dysfunction, which is defined as female sexual difficulties that are persistent, pervasive, and/or cause personal distress.^{16,39} The most common measure of female sexual functioning is the Female Sexual Functioning Index (FSFI), which has been used in the majority of contraceptive studies that include sexuality measures.^{40–45} It was originally developed as a diagnostic tool to assess sexual dysfunction in women and is commonly used in studies of perimenopausal women who may be experiencing sexual or other health problems. Validated in various cultures and languages, the FSFI contains domains on desire, arousal, lubrication, orgasm, pain, and general sexual satisfaction.^{46,47} Although the FSFI includes general “satisfaction” measures, it fails to measure interpersonal sexual components. Researchers commonly use the FSFI in conjunction with quality of life measures, which capture more indirect influences on sexual wellbeing. Other measures such as the Short Sexual Functioning Scale (SSFS),⁴⁸ Sexuality Functioning Questionnaire (SFQ),⁴⁹ the Mell-Krat Scale of female sexual response (SFK-S),⁵⁰ and the New Sexual Satisfaction Scale (NSSS)⁵¹ have been developed but are used less frequently in contraceptive research.

Methods

This review explores studies of sexual satisfaction and sexual functioning among women who are using HERC. Selection criteria included studies that examined women 18 to 55 years of age who were trying to avoid pregnancy by using modern contraceptive methods and evaluated sexual satisfaction and functioning. Studies that integrate male partners' perspectives were also considered. Studies were excluded if they did not specifically evaluate HERC methods, if women were menopausal, or if women had conditions that may affect sexual function independent of contraception. The main outcomes of interest were measures of sexuality, sexual satisfaction, and sexual functioning. Data collection tools were comprised of validated surveys and qualitative research.

This review followed the recommendations for a quality systematic review described elsewhere.^{52,53} Two authors (J.N.S. and N.K.S.) independently searched MEDLINE, SCOPUS, and Google Scholar, limiting the search to articles published in English (as language has been previously shown to not impact findings of systematic reviews⁵³). We restricted the search to the last 30 years (1984 to 2014) to ensure that the literature included modern contraceptive options and excluded methods not currently on the market in the United States (ie, Norplant, Jadelle). Search terms included "sexual satisfaction and contraception," "orgasm and contraception," "sexual pleasure and contraception," "FSFI and contraception," "sexual functioning and contraception," "sexual side effects and contraception," "sexual satisfaction/functioning and IUD," and "sexual satisfaction/functioning and contraceptive implants." Each reviewer identified relevant studies based on titles, abstracts, and finally reviewed the full text. Bibliographies of each selected studies were also evaluated to identify and incorporate additional studies into the review.

Unpublished studies, abstracts, posters, and presentations were considered for relevance. Duplicates identified between researchers and databases were removed using the EndnoteX7 Reference manager. Figure 1 shows the PRISMA flow chart for the literature search, which was created using the PRISMA Flow Diagram Generator from the THETA collaborative.⁵⁴

Results

DESCRIPTION OF STUDIES

The previously mentioned search criteria returned 6609 studies. Duplicate studies were discarded, leaving 3869 unique publications. Titles were reviewed for relevance to sexual experience and contraception; 3705 were determined to be off-topic and 164 selected for abstract review. After reading abstracts, 96 were excluded because of lack of consideration of HERC methods, populations that were outside of age ranges, or the absence of sexual measures as a main outcome. A total of 68 papers were selected for full text review. After reading each paper and examining references, a total of 11 studies met all the search criteria. Table 1 catalogues each of the studies included in this review and describes their findings in brief. The selected studies examined HERC methods and included sexual function or sexual satisfaction as one of the main outcomes.^{12,40–45,48,55,58–60} All of these studies were conducted outside of the United States; countries represented include Belgium, China, Finland, Germany, Iran, Italy, Poland, and Spain. Some studies considered just the Levonorgestrel (LNG) IUD, Copper (CU) IUD, or contraceptive implant, whereas others lumped multiple methods together. All studies reviewed were observational; the majority relies on findings from cross-sectional data with 4 using a prospective study design.

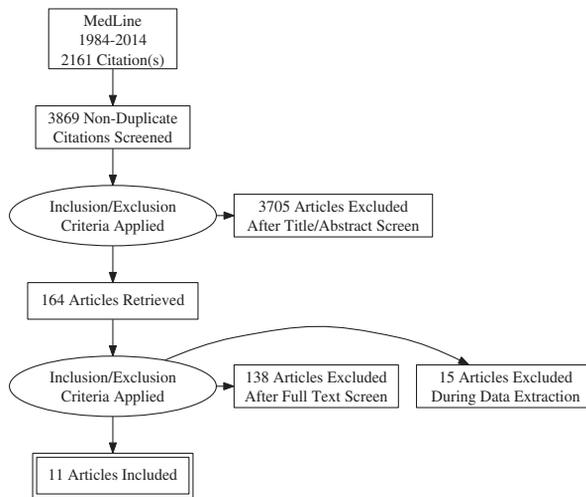


FIGURE 1. PRISMA flow chart.

IUDs

Ten of the 11 studies included the IUD. These studies were conducted in the last 15 years (1999 to 2014). In summary, the findings suggest that IUDs are associated with either positive or no effect on self-reported sexual experiences and functioning. None of the prospective studies included in this review reported a negative impact of IUD use on sexual satisfaction or functioning.

IUD POSITIVE EFFECTS

One of the earliest studies (1999) assessing the impact of HERC on sexuality was among a population of women in West Germany ($N = 1466$). Women were asked about past and current contraceptive methods and the perceived impact of these methods on their sexuality. Investigators collected participants' subjective experiences using OC, condoms, IUDs, natural family planning, and female sterilization. Participants completed questionnaires that assessed method satisfaction, unintended pregnancy, health concerns, side effects, impact on mood, menstrual cycle, and sexual experience. Eight percent of participants ($n = 119$) were currently using the IUD and 23%

reported ever using the IUD ($n = 223$). Over half (55%) of current IUD users and 36% of ever IUD users reported a positive influence of the method on their sex lives. Current users attributed increases in frequency of intercourse, spontaneity, and pleasure to the IUD.⁵⁶ Significantly more women who had previously used the IUD reported a negative impact on their sex life compared with current users (13% compared with 3%; $P < 0.001$). A limitation of this cross-sectional study is that it did not compare across methods or address the specific type of IUD used, the duration of method use, or the reason for discontinuation.

In a paper published in 2008, a sample of Polish women who were using either the LNG IUD or CU IUD ($n = 100$) and women who were not using any method of contraception ($n = 100$) were enrolled in a cross-sectional study. These women completed the FSFI, the Mell-Krat Scale (SFK-S), and the Short Form-36 health survey (SF-36). The group of women using no contraception reported the highest proportion of sexual dysfunction (35%), followed by women on the CU IUD (21%) and the LNG IUD (10%).⁴³ Using the FSFI, Skrzypulec and Droszdzol⁴³

TABLE 1. Characteristics of Included Studies

References	Country	Total N	# HERC Users	Age Range (y)	Type of Study	Assessment Tool/ Technique	Impact
Intrauterine Devices (IUD)							
Bastianelli et al ⁴⁰	Italy	156	156 (LNG-IUD)	26-49	Prospective	EuroQuality of Life 5-D; FSFI	Positive
Chen and Ho ¹²	China	742	124 (IUD)	44-55	Cross-sectional survey	Mass Women's Health Survey	Positive
Enzlin et al ⁴⁸	Belgium	402	353 (LNG-IUD) 49 (CU-IUD)	17-55	Cross-sectional (LNG vs. CU)	SSFS; VAS-QSF	No difference
Fataneh et al ⁴¹	Iran	608	31 (IUD)	15-49	Cross-sectional (contraception vs. none)	FSFI	Mixed
Li et al ⁵⁵	China	361	96 (IUD)	35 ± 5.3	Prospective	WHOQOL; DSFI	No difference
Martin-Loeches et al ⁴²	Spain	1073	313 (IUD)	15-50	Cross-sectional (OC vs. IUD)	FSFI	No difference
Oddens ⁵⁶	West Germany	1303	342 (IUD)	20-49	Cross-sectional	Self-developed qnr	Positive
Skrzypulec and Dorszol ⁴³	Poland	200	100 (IUD)	30-45	Cross-sectional	SF-36, FSFI, Mell-Krat Scale	Positive
Suhonen et al ⁵⁷	Finland	200	94 (LNG-IUD)	18-25	Prospective (OC vs. IUD)	3-item sexual questionnaire	No difference
Toorzani et al ⁴⁴	Iran	280 (140 couples)	20 (IUD)	15-45	Cross-sectional	FSFI; Dr.Abo's 10-item	No difference
Contraceptive Implant (CI)							
Di Carlo et al ⁴⁵	Italy	52	33 (Nexplanon)	18-45	Prospective	SF-36, FSFI	Positive

DSFI indicates Derogatis Sexual Functioning Inventory; FSFI, Female Sexual Functioning Index; SF-36, short form 36 question on quality of life; SSFS, short sexual functioning scale; VAS-QSF, visual analog scale-questions on sexual functioning; WHOQOL, World Health Organization Quality of Life.

demonstrated a positive association between the LNG IUD and sexual desire, arousal, and overall sexual function compared with women who were not on any method of contraception ($P < 0.01$). The LNG IUD group also had statistically higher desire, arousal, and overall FSFI scores than the CU IUD group ($P < 0.01$). However, both IUD groups scored higher on sexual satisfaction, orgasm, and overall functioning compared with the group using no contraception ($P < 0.05$). The SFK-S confirmed the FSFI findings, also demonstrating the highest levels of sexual function in the LNG IUD group ($P < 0.01$). A limitation of this study is the use of noncontraceptors as a comparator. Characteristics between contraceptors and noncontraceptors differed and may blur the findings.

Fataneh et al⁴¹ conducted a cross-sectional study of 608 married women in Iran.

Women who were using some method of contraception ($n = 306$) were compared with women who were not using any method ($n = 302$). The FSFI was used to assess sexual dysfunction of women using OC, condoms, IUDs, male sterilization, female sterilization, natural family planning, or injectable contraception. There was a significant difference in FSFI scores between contraceptors and noncontraceptors (18.1 ± 4.2 vs. 26.5 ± 4.5 , respectively), indicating poorer sexual function in the group of women not using any method of contraception. This study uses the FSFI cut-off score of 28 to assess sexual dysfunction,⁴¹ although others have determined that 26.5 to be a more optimal cut-off score.⁴⁷ Some sexual dysfunction was observed in all groups, although the distribution was not presented in the manuscript. IUD users had a mean FSFI score of 13.4 ± 6.8 and reported higher average

scores on the sexual pleasure and satisfaction domains when compared with users of other contraceptive methods, although there was not a statistical significance.⁴¹

Bastianelli and colleagues examined quality of life and sexual functioning using the EuroQuality of Life 5-D scale and the FSFI in a sample of Italian women requesting the LNG IUD at a family planning clinic ($n = 156$). This prospective study assessed women at baseline and 1, 3, 6, 12, and 60 months after initiating the IUD. Women using the IUD showed significant improvements between baseline and the 12-month follow-up in sexual desire and pain. However, investigators found no significant change in overall sexual functioning according to total FSFI scores.⁴⁰

In a study conducted in China, researchers Chen and Ho found that an IUD was the most popular method of choice for premenopausal (38%) and perimenopausal (42%) women from Beijing. Sexual frequency was positively correlated with contraceptive satisfaction ($P < 0.05$) and results from a regression (controlling for menopausal status and sociodemographic variables) found that women who were satisfied with their contraceptive method were 5 times more likely to engage in sex at least once per month. The authors discuss that among this study population, IUD users had more frequent sexual activity. They postulated that because the IUD is not user or coitally-dependent, this method did not interfere with sexual enjoyment or orgasm for these women. This is one of only a few studies to show an association between sexual function and contraceptive satisfaction.¹²

IUD MIXED EFFECTS OR NO EFFECT

Martin-Loeches et al⁴² conducted a prospective study of $N = 1073$ women using either OC or CU IUDs at a family planning clinic in Spain. Investigators scored the FSFI at baseline and 3, 6, and 12

months after contraception initiation. IUDs were selected by 29% of the women enrolled ($n = 313$). Models of CU IUD not available in the United States were used in this study and included the Cu 375, IUD Nova T, and Gine T380. However, because of similarities in these non-hormonal IUDs to the ParaGard this study was retained. Researcher found that the majority of women (89%) reported no decrease in sexual desire between baseline and 12 months based on FSFI scores. Sexual desire among OC and CU IUD users was found to increase at 12 months from baseline when investigators controlled for quality of relationship with partner, age, and parity.⁴² No significant differences were observed in overall sexual function (based on total FSFI scores) between women using the CU IUD and women using OC in the 12-month timeframe (odds ratio 1.32; 95% confidence interval, 0.7-2.49).⁴²

Suhonen et al⁵⁷ created a 3-item questionnaire to capture level of sexual interest, satisfaction with sexual activity, and frequency of sexual intercourse of 200 young nulliparous women using either OC or an IUD. After 12 months, no participants in the either group reported any significant change in these sexuality measures. However, the LNG IUD group reported comparatively higher continuation rates (88% vs. 68%; $P < 0.01$), and IUD users were as likely to say their method was “moderately to very good” compared with OC users (90% vs. 88%; $P = 0.36$).⁵⁷

Enzlin et al⁴⁸ assessed sexual functioning (SFSS), well-being (WHO-5), depression (Beck Depression Inventory), and relationship quality (Dyadic Adjustment Scale) among CU IUD and LNG IUD users in a cross-sectional study of 402 women in Belgium. This study did not have a non-HERC comparison group. The SFSS is a 3-item scale that asks about increases or decreases in sexual desire, vaginal dryness, and orgasmic dysfunction using a 4-point Likert scale with anchors

“not present” and “extreme problem.” Women who indicate any problem identify their level of distress about the issue. Women were also asked about their subjective experience of the IUDs’ impact on sexual functioning using a visual analogue scale (VAS). The majority of women (95%) reported satisfaction with their current IUD and 90% would recommend the device to a friend; however, significantly more LNG IUD users were “very satisfied” (73% vs. 55%; $P < 0.03$) compared with CU IUD users. A third (33%) reported some sexual functioning issues based on the SSFS; however, few women reported distress about these issues. Overall, women using the LNG IUD did not differ from women using the CU IUD in overall sexual function. Of women who noted a change in functioning, 29% reported increased sexual desire, 36% reported decreased sexual desire, 20% experienced arousal problems, and $< 10\%$ reported problems with orgasm. Perceived sexual satisfaction, frequency of sexual activity, sexual desire, arousal, and orgasm were similar between both groups of IUD users.⁴⁸

Li and colleagues also found mixed effects of contraception use, including IUDs, on female sexuality. First time users of OC ($n = 87$), injectable contraception ($n = 67$), IUDs (both CU IUDs and LNG IUDs, $n = 96$), and female sterilization ($n = 130$) were recruited in China. The WHO Quality of Life questionnaire and the Derogatis Sexual Functioning Inventory (DSFI) were conducted at baseline and at a 3 to 4 month follow-up visit. The DSFI measured body image, sexual satisfaction, and sex drive. No differences were observed in the OC, injectable, or the IUD groups between baseline and follow-up ($P > 0.05$). Women who had been sterilized had significantly higher DSFI scores at follow-up compared with baseline and showed more improvement when compared with the other methods of contraception ($P < 0.01$).⁵⁵

Toorzani and colleagues also found no association between HERC and sexual satisfaction. This was the only study that included both men and women. A total of 280 individuals (140 couples) were recruited to achieve an equal number of couples using withdrawal, female sterilization, OC, male condoms, vasectomy, IUD, and injectable contraception. Investigators employed a self-developed scale as well as 3 items from the FSFI on sexual satisfaction. Toorzani and colleagues found no significant findings regarding sexual satisfaction and contraceptive use among women ($P = 0.56$); however, there was an association between method and sexual satisfaction among men ($P < 0.001$). The highest mean score of male satisfaction was with female injectable contraception and tubal ligation. The lowest mean score of male satisfaction was seen with condoms. HERC methods were not identified as either increasing or decreasing experiences of sexual pleasure.⁴⁴

CONTRACEPTIVE IMPLANTS

Data on contraceptive implants and sexual experience are sparse, with only 1 study of implants and sexuality included in the review. Some available data were excluded from this review as they included implants that are no longer available such as Norplant and Jadelle.^{61,62} A qualitative study was excluded because of the absence of sexuality as a main outcome measure.⁶⁰

CONTRACEPTIVE IMPLANT POSITIVE EFFECTS

In a recent paper published in 2014, investigators conducted a prospective study of the Nexplanon etonogestrel implant in a population of Italian women aged 18 to 45 years old with an active sexual life ($n = 46$).⁴⁵ Women who received a Nexplanon completed surveys before insertion, and again at 3 and 6 months postinsertion. An Italian-validated version of SF-36 was used to measure general health, mental health, physical pain, physical functioning, vitality,

and social and emotional functioning. The FSFI was used to measure changes in sexual functioning over time. There were significant improvements in arousal, orgasm, satisfaction, and pain observed at 3 months compared with baseline measures ($P < 0.05$) for implant users. A significant increase in overall FSFI score was established at both the 3-month ($P < 0.01$) and 6-month follow-up ($P < 0.05$) compared with women's baseline scores. The implant was also associated with significant improvements in general health and physical role functioning ($P < 0.05$) at 3 months and continued to improve between the 3 and 6 month surveys ($P < 0.05$). Vitality, social functioning, and mental health showed some decline ($P < 0.05$) between baseline and 3 months but returned to baseline or better levels by 6 months.⁴⁵

RESULTS OF ANALYSIS

Given that we could not combine these studies into a meta-analysis because of substantial variations in methodology and study populations, we conducted a systematic descriptive review. Some of the studies represent new users,^{40,45,55} others required participants to have had the same method for at least 6-months or an undetermined amount of time,⁴⁸ some studies used the FSFI,⁴⁰⁻⁴³ whereas others developed scales to measure sexual functioning.^{48,56,57} Only 4 studies included data collected prospectively.

The focus of the aforementioned papers is female sexual function; sexual improvements were not the primary outcome of interest. However, somewhere between a quarter and just over one half of women using the IUD experienced an increase in sexual desire or an improved sex life overall (29%⁴⁸ to 55%⁵⁶). However, most studies reported no change in the majority of participants' sexual functioning from baseline^{40,42,48,55} or no difference when compared with OCs or other contraceptive methods.^{42,48,57} In the studies reviewed, between 10%⁴³ and 16%⁵⁶

of participants reported some negative impact of contraceptive use on their sexual functioning.

Substantial limitations exist in the current literature, which prevent a thorough analysis of HERCs' impact on women's sexual experience. Some of these limitations include combining various contraceptive methods into hormonal versus nonhormonal methods which potentially fails to capture how individual methods and hormonal components may affect a woman's sexual experiences very differently^{41,63}; exclusion of certain methods because of small numbers⁶⁴; small samples sizes in general⁵⁹; and cross-sectional study designs, which may result in bias created by not including women who had previously discontinued use of HERC.⁴⁸ These limitations, combined with a general lack of research on the relationship between contraception use and women's sexual experiences, necessitate additional research on and prioritization of sexual health outcomes in future HERC research.

Discussion

Although sexuality has been deemed a "critical issue" in contraceptive acceptability research,⁶⁵ most studies fail to explore methods' effects on women's sexual satisfaction or functioning, let alone how such effects shape contraceptive uptake, adherence, and continuation. Given that sexual health is not merely the absence of dysfunction, contraceptive research will benefit from shifting the paradigm from dysfunction to examining and highlighting the sexual benefits that may also be experienced. Investigating both the potential positive and negative sexual aspects of contraceptive use represents a vital and understudied area for the family planning field. Although this review and others highlight the burgeoning contraceptive research that does attend to women's sexuality, existing studies indicate expansive room for improvement. The STI/HIV prevention field has long been

light years ahead of the family planning field in terms of its attention to male sexual pleasure in condom use promotion. Both the condom industry and academic research have focused on condom fit and feel and how sexual experiences do, in fact, shape condom use intentions and behaviors.^{66–70} Condom marketing strategies centralize the sexual experience—happy, sexually satisfied couples are portrayed with their hair blown back and are eager to purchase more condoms to recreate the pleasurable experience.⁷¹ Although it is overtly apparent how certain political and religious factions in the United States continue in efforts to suppress women's reproductive and sexual freedoms, it is up to us to push in the opposite direction. The family planning field, including the sub-field of HERC research and promotion, has been sorely remiss in emphasizing and connecting the dots between women's use of contraception and their sexuality. This remission is evidenced by our results that only 11 studies in the past 30 years have examined women's sexual experience relative to their use of the methods that family planning specialists are the most interested in promoting. In an era when we are working to retool our efforts to empower women to optimize their reproductive health and reduce unintended pregnancies in the United States we should take instruction from the tactics employed by the condom industry and STI/HIV prevention messages that explicitly tie contraception use to women's sexual agency, behaviors, and pleasure.

Although HERC may not be the right method for every woman,⁷² our ability to highlight the potential for positive sexual outcomes related to HERC use may be a welcome suggestion for women who have used and/or discontinued other hormonal methods because of perceived negative sexual side effects. Reproductive health clinicians are uniquely situated to discuss sexual health and function with women.

Providing a sex-positive space for women and making a concerted effort to incorporate sexuality as a part of comprehensive and holistic reproductive health care will likely result in optimal health and pregnancy outcomes for women, their partners, and their children.

In addition, it is critical to explore the cultural influences on sexuality in the context of HERC use and other contraceptive use. Clear sociocultural influences make methods more or less acceptable in various settings and among various groups. Therefore, one of the largest limitations in the current literature is a lack of studies on women living in the United States. Although the studies reviewed here contain valuable lessons learned, they do not enhance our cultural knowledge of what makes HERC methods more or less acceptable among United States women. Exploring the variety of tools that measure functioning and sexual satisfaction and determining which domains predict continuation and method satisfaction is necessary to create a standard instrument to be used in contraceptive trials. In addition, prospective contraceptive trials conducted in the United States will be the key to measuring changes in sexual satisfaction and sexual functioning upon initiation of HERC. Longitudinal exploration of changes in the sexual experience will aid researchers and clinicians in understanding how the effects on sexuality interface with method acceptability, satisfaction, and continuation rates. Through increased understanding of the perceived impact of contraception on sexual satisfaction, clinicians may better counsel patients on the benefits of HERC, while improving optimal reproductive and sexual health outcomes.

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