

**Sexual well-being among individuals undergoing fertility treatment: A review of recent literature**

Katherine Péroquin, Ph.D.  
Université de Montréal

Laurie Beauvilliers, B.Sc.  
Université de Montréal

Zoé Benoît, B.Sc.  
Université de Montréal

Audrey Brassard, Ph.D.  
Université de Sherbrooke

Natalie O. Rosen Ph.D.  
University of Dalhousie

**ACCEPTED MANUSCRIPT**

**ORCID :**

Katherine Péroquin : 0000-0003-2680-3197

Laurie Beauvilliers : 0000-0001-7516-3953

Zoé Benoît : 0000-0001-8148-4139

Audrey Brassard : 0000-0002-2292-1519

Natalie O. Rosen : 0000-0002-4525-0770

**Corresponding author :**

Katherine Péroquin; katherine.peloquin@umontreal.ca; Département de psychologie; Pavillon Marie-Victorin, Université de Montréal, C.P. 6128, succursale Centre-Ville, Montréal, QC, Canada, H3C 3J7.

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## Abstract

**Purpose of review.** Recognizing the link between infertility and sexual health is crucial to providing comprehensive fertility care. The aims of this systematic review were to examine studies investigating the prevalence of sexual dysfunction, factors linked to sexual well-being, as well as psychosocial interventions targeting sexuality in individuals undergoing medically assisted reproduction (MAR).

**Recent findings.** An advanced search was conducted in Embase, Web of Science, CINAHL, PubMed and PsycINFO to find articles published between January 2018 and September 2023. After review for eligibility criteria, 83 articles were reviewed. No studies specifically explored the experiences of sexual and gender/sex diverse individuals. In women, rates of sexual function problems varied from 6.9% to 77.3%, whereas it ranged from 6.7 to 53.6% in men. Most studies revealed significantly lower sexual well-being in individuals with infertility compared to those without. Studies identified that women and men achieving pregnancy through MAR reported lower overall sexual function during pregnancy, compared to women and men who conceived without MAR. Studies identified a range of medical, individual, and relationship factors linked to sexual well-being in the context of MAR and suggested that psychological interventions can enhance the sexual well-being of women with infertility.

**Summary.** This systematic review highlights the clear link between infertility, MAR, and lower sexual well-being in both men and women. Future research should prioritize the use of longitudinal designs to allow for a more in-depth exploration of the dynamic changes in sexual experiences over time. Future research should also consider the distinct challenges of sexual and gender/sex diverse individuals and their experiences of sexual well-being during MAR. Finally, there is a potential gap in research focusing on couple-based interventions. Collaborative efforts between reproductive medicine specialists and mental health professionals could ensure a comprehensive approach to addressing the medical and psychosocial aspects of infertility-related sexual issues.

**Keywords:** Sexual well-being; sexual function; infertility; medically assisted reproduction; literature review

## **Sexual well-being among individuals undergoing fertility treatment: A review of recent literature**

### **Introduction**

The global lifetime prevalence of infertility in 2022 is estimated to be 17.5% (1). Infertility—the inability to conceive after a year of regular unprotected intercourse (1)—presents a substantial obstacle for couples aspiring to become parents. Its impact goes beyond reproductive health, affecting emotional, psychological, and relational dimensions. Many individuals also grapple with sexual difficulties. Despite the recognized importance of sexual well-being—that is, sexual function, sexual satisfaction, sexual desire, sexual self-esteem, and lack of sexual distress—to quality of life, it is too frequently overlooked in this context. Patients often receive limited guidance on sexual well-being, despite potential challenges arising during medically assisted reproduction (MAR)—i.e., procedures, surgeries, and technologies to treat fertility impairments and infertility. Recognizing the inherent link between infertility and sexual health is crucial to providing comprehensive fertility care.

As mixed-gender/sex couples strive to achieve pregnancy, it becomes challenging to separate sexuality from procreation. Couples express that their sexual experiences become mechanized, scheduled around ovulation cycles, and lack spontaneity and pleasure (2, 3). Moreover, during MAR, couples are often queried about their sexual practices and provided with instructions regarding the timing of sexual intercourse to maximize treatment, which can be experienced as intrusive (2, 3). Consequently, individuals commonly face challenges in their sexual relationship. According to reviews published in the past 10 years focusing on sexuality in the context of infertility and MAR (2-6), the rates of sexual disorders are variable. The most recent review including 36 studies published between 1996 and 2021 reported prevalence rates of any sexual disorder ranging from 11.3% to 87.5% in women, and from 8.9% to 84.9% in men (5). In their meta-analysis, Leeners et al. (5) reported that women in couples with infertility face an increased likelihood of sexual difficulties by a factor of 1.68 when undergoing MAR. Men are three times more prone to erectile dysfunction and twice as likely to encounter premature ejaculation. Moreover, individuals engaged in MAR exhibit lower levels of sexual satisfaction when compared to individuals without infertility (5). These findings underscore the multifaceted effects on sexual well-being of infertility and MAR.

Prior reviews have highlighted various factors linked to lower sexual well-being in the context of infertility (2, 3, 5). Factors associated with the diagnosis, cause, or type of infertility have demonstrated associations with lower sexual function. This includes male-factor infertility and discomfort regarding the production of semen samples in clinical settings for men, and conditions like polycystic ovary syndrome, endometriosis, and female-factor infertility in women, although not all studies report these effects (2, 5). A longer duration of infertility has also been linked to lower sexual satisfaction and more sexual problems in men and women (3, 5). Psychological factors such as reduced self-esteem, negative body image, feelings of guilt, shame, anxiety, and depression, along with cultural norms and societal pressures to conceive, have similarly been correlated

with lower sexual well-being in this context (3, 5). Additionally, relationship factors, including lower relationship satisfaction and conflict have emerged as risk factors for lower sexual well-being (3, 5).

### **Limitations of Prior Reviews**

Previous reviews on infertility and sexuality have focused on a limited range of outcomes (primarily sexual problems and satisfaction), while neglecting other aspects likely to be influenced in this context, including sexual distress, sexual self-esteem, and infertility-specific sexual well-being. They have also failed to consider sexual well-being in couples who successfully achieved pregnancy through MAR. While most individuals undergoing MAR successfully conceive within 5 years (7), the end of treatments does not always mark the resolution of issues associated with MAR. A qualitative study including 230 women who conceived through MAR revealed that many still grappled with the repercussions of MAR (8). Couples with a history of MAR possess a unique conception history that could impact their sexuality during pregnancy.

Importantly, there are no reviews exploring the sexual well-being of sexual and gender/sex diverse individuals (e.g., 2S/LGBTQ+, trans and non-binary gender identities) seeking MAR. These individuals face social infertility—i.e., the impossibility of conceiving children biologically due to their sexual partnerships (9). Whereas the use of MAR is growing within the sexual and gender/sex diverse community (10, 11), the effects of MAR on these individuals' sexual well-being remains unexplored. Finally, although a few reviews have summarized the effectiveness of psychosocial interventions in the context of infertility (12-15), none specifically focused on sexual outcomes. Taken together, these limitations to prior reviews underscore the need for more comprehensive and inclusive reviews to gain a nuanced understanding of the interplay between infertility, MAR, and sexual well-being, as well as the usefulness of interventions for alleviating the sexual challenges arising during MAR.

### **Objectives**

In compliance with the PRISMA guidelines, this systematic review examined studies published within the last 5 years that investigated the prevalence of sexual dysfunction, factors linked to sexual well-being, as well as psychosocial interventions targeting sexuality in individuals undergoing MAR. This includes the examination of a wide range of sexual outcomes both during and after fertility treatment, particularly when MAR results in a pregnancy, as well the consideration of sexual and gender/sex diverse individuals.

## **Method**

### ***Inclusion and Exclusion Criteria***

Papers had to (1) include individuals with medical infertility or who sought MAR, (2) include qualitative or quantitative studies addressing any aspect of sexual well-being, (3) be written in English or French, and (4) be published in peer-reviewed journals in the past 5 years. Publications not including original empirical data (e.g., reviews, meta-analyses,

chapters) or addressing infertility resulting from medical conditions that could impact sexual health (e.g., cancer, vaginismus) were excluded.

### ***Search Strategy***

An advanced search using Medical Subject Headings (MeSH) terms was conducted in Embase, Web of Science, CINAHL, PubMed and PsycINFO to find articles published between January 2018 and September 2023. The following search strategy was used: (“sexuality” OR “sexual function” OR “sexual dysfunction” OR “sexual problems” OR “sexual complaint” OR “sexual disorder” OR “sexual desire” OR “sexual arousal” OR “dyspareunia” OR “vaginismus” OR “sexual pain” OR “orgasm” OR “erectile dysfunction” OR “premature ejaculation” OR “sexual satisfaction” OR “sexual distress”) AND (“infertility” OR “involuntary childlessness” OR “fertility” OR “fertility treatment” OR “in vitro fertilization” OR “IVF” OR “IUI” OR “medically assisted reproduction” OR “assisted reproductive technology”). Two reviewers independently screened full-text papers to exclude any papers that did not match the inclusion criteria (see Figure 1).

### ***Data Extraction***

Two reviewers extracted data from the studies, including authors, year of publication, country in which the research was conducted, study design, sample characteristics, measures used, sample size, and key results. When available, the prevalence of sexual problems was also extracted. Results were grouped by research objectives (i.e., comparison of sexual well-being based on fertility status, predictors of sexuality, effectiveness of interventions to enhance sexual well-being) and by sample characteristics (i.e., men, women, couples).

## **Results**

### **Summary of the Studies**

This review includes data from 31,872 individuals across 83 empirical studies. Most studies compared the sexual well-being of different subgroups of individuals ( $n = 49$ ; Table 1) or investigated factors associated with sexual outcomes ( $n = 49$ ; Table 2). Studies that met both objectives are listed in both tables. A few studies ( $n = 10$ ) investigated the efficacy of interventions to enhance sexual well-being (Table 1). The review includes 5 qualitative and 78 quantitative studies. Most quantitative studies were cross-sectional ( $n = 66$ ).

Half of the studies included exclusively women ( $n = 41$ ), while a minority included men only ( $n = 12$ ), both men and women as individuals ( $n = 8$ ), or both partners of mixed-gender/sex couples ( $n = 22$ ). The studies were predominantly conducted in Iran ( $n = 25$ ), followed by China ( $n = 12$ ), Turkey ( $n = 7$ ), the United States ( $n = 7$ ), Italy ( $n = 6$ ), and Canada ( $n = 6$ ). While most studies (68) surveyed participants visiting a fertility clinic, others focused on women and men during pregnancies resulting from MAR ( $n = 2$ ).

### **Sexual and Gender/Sex Diverse Individuals**

No studies specifically explored the experiences of sexual and gender/sex diverse individuals. Allsop et al. (17) included same-gender/sex couples (9.2% of their sample)

but lacked specific subgroup results. Prevalence rates of sexual function problems, explicit comparisons with heterosexual/cis-gender individuals, and factors influencing well-being in sexual and gender/sex diverse individuals absent in the reviewed studies. Moreover, no study explored the effectiveness of psychological interventions for this group.

### **Prevalence of Sexual Problems**

The prevalence of sexual dysfunction exhibited considerable variability across studies. This may be attributed to disparities in sample characteristics, geographic locations of research, measurement, and timing of measurement in relation to the MAR process. These factors collectively contribute to the complexity of interpreting the reported prevalence rates. Most studies that reported rates of sexual dysfunction did not conduct a clinical assessment or account for experienced distress (i.e., the distinction was made solely from questionnaire responses), which are necessary for diagnosis. Hence, these studies more accurately reflect prevalence rates of sexual function problems.

In women, rates of sexual function problems varied from 6.9% to 77.3%, whereas it ranged from 6.7 to 53.6% in men. The sexual problems rates in these studies were primarily based on the global cut-off scores of the Female Sexual Function Index (16) and the International Index of Erectile Dysfunction (17). Among all domains of female sexual function, Lo et al. (18) found that orgasmic problems was the most common sexual function problem in Chinese couples undergoing intrauterine insemination (IUI), affecting 33.3% of women, with sexual pain being the least common (14%). In Canadian couples attending a fertility clinic, Purcell-Lévesque et al. (19) found that sexual desire problems were most common in women (58%) and sexual pain least common (14.8%). The most common sexual problem in men was low desire (28.9%) and the least common was dissatisfaction with orgasm (6.7%).

Cocchiario et al. (20) introduced a novel measure, the Sexuality and Emotions in Infertility Questionnaire, specifically designed to evaluate sexual difficulties in the context of infertility. This revealed that 56% of women experienced pain during intercourse, 44% had difficulty reaching orgasm, and 44% faced challenges in completing intercourse. Among men, 25% reported various sexual difficulties. Additionally, 28% of men and 42% of women mentioned infertility affecting sexual desire, while 40% of men and 53% of women reported changes in sexual habits. Despite its early development, this measure offers a more precise understanding of the sexual experiences of individuals in the context of infertility. Other studies also utilized infertility-specific measure to identify sexual problems. For example, using the Fertility Problem Inventory (21), Ndubuisi et al. (22) reported that 33.9% of Nigerian women retrospectively expressed satisfaction with sexual intercourse before receiving an infertility diagnosis, but post-diagnosis, only 12.2% maintained satisfaction. Moreover, 65% of women reported a lack of enjoyment in sexual activity with their partners.

In one of the rare longitudinal studies, Lo et al. (18) investigated changes in sexual function across a cycle of intrauterine insemination (IUI). They found a significant

improvement in orgasm (but no other domains of sexual function) in women during the IUI cycle. No change was observed in men's erectile function throughout treatment.

### **Comparing the Sexual Well-being of Individuals with and without Infertility**

Studies comparing individuals with and without infertility are summarized in Table 1. Most studies revealed significantly lower sexual well-being in individuals with infertility compared to those without (23-36), although some studies reported no significant group differences in men's and women's sexual satisfaction and function during fertility treatment (37-40) or years after treatment in midlife women (41). Moreover, women with infertility reported more problems with sexual desire, arousal, and orgasmic function (25, 26, 28), as well as lower sexual self-esteem (42) than women without this challenge. Men with infertility reported lower sexual self-confidence compared to men without (43).

### **Sexual Well-Being During Pregnancy**

Two studies compared the sexual well-being of individuals who conceived through MAR with those who conceived without MAR during pregnancy (Table 2). One study identified that women achieving pregnancy through MAR reported lower overall sexual function, arousal, and sexual satisfaction during the first trimester, as compared to women who conceived without MAR; however, these differences dissipated in the second and third trimesters (44). Another study revealed higher rates of erectile difficulties among men undergoing In Vitro Fertilization (IVF) throughout fertility treatment, mid-pregnancy, and up to one year postpartum, in contrast to men who conceived without MAR (45).

### **Factors Associated with Sexual Well-Being**

Studies ( $n = 59$ ) that have investigated factors associated with sexual well-being and function in the context of infertility are summarized in Table 2.

#### *Medical and infertility-related factors*

Several studies have reported associations between longer infertility duration and lower sexual function in both women and men (46-50). In men, higher infertility duration was linked to higher rates of erectile difficulties and premature ejaculation, as well as lower satisfaction with intercourse (46). Conversely, some studies found no significant correlations between infertility duration and sexual well-being in either women or men (51-54), and one study found that longer infertility duration was associated with better sexual function in women (55).

Several studies indicate no significant associations between the type of infertility (primary or secondary), cause of infertility, number of previous IVF cycles, and sexual function in women or men (51-53, 56, 57). One study found a higher number of previous treatment cycles was linked to lower sexual satisfaction in women (52). Notably, individuals involved in IVF reported lower sexual function and satisfaction compared to those participating in IUI and hormonal treatments (52, 58). Male sexual function was found to be lowest when men experienced male factor infertility (46), which was also associated with more lubrication problems in the female partner (59).

Two studies examined associations between the financial burden of infertility and MAR and sexual well-being. Higher treatment costs and inability to afford treatment were associated with lower sexual function in women (48, 60). Another study demonstrated that greater perceived financial burden was linked to lower infertility-related quality of life, which was in turn associated with lower sexual satisfaction and desire and higher sexual distress in men and women (61).

#### *Sociodemographic factors*

Lower education level has been associated with lower sexual function in both women and men across multiple studies (47, 53, 55, 60), although other studies did not establish this link for sexual function (51, 57, 62, 63) or sexual satisfaction (52, 56) in either gender. Lower income has also been associated with poorer sexual function in women (60), but this association was not observed in men in some studies (53, 57). For men, lower income was associated with lower sexual satisfaction and function (49, 52). However, other studies found no significant correlation between income and sexual satisfaction, function, or distress in men and women (52, 61, 63, 64).

#### *Individual factors*

Anxiety and depression have consistently demonstrated connections with poorer sexual function in women and men (31, 47, 65-67) and greater erectile difficulties and premature ejaculation in men (67, 68). Poorer emotional regulation was linked to lower sexual function in men and women (69). Attachment styles were also linked with sexual well-being; in women, greater attachment avoidance correlated with lower sexual satisfaction, lower sexual anxiety, and more pain during intercourse while attachment anxiety was linked to lower sexual internal control and lubrication difficulties. In men, greater attachment anxiety was linked with more erectile and orgasm difficulties, while attachment avoidance was linked with higher sexual internal control (19, 70). Higher perceived social support has been associated with higher sexual function and satisfaction in women (59) and men (64). Furthermore, studies have revealed that a more positive genital self-image correlates with greater sexual satisfaction (71) and that a more positive self-image (31, 47) and higher sexual self-efficacy (62) were linked to higher sexual function in women (47). Optimism, quality of life, life satisfaction, coping, and health literacy were also positively associated with sexual satisfaction (64, 72) and function in men and women (72, 73).

With regard to infertility-specific factors, lower infertility-related quality of life has been linked to lower sexual function in women (65) and men (66), as well as lower sexual satisfaction and sexual desire, and higher sexual distress among men and women (61). Infertility-related distress has also been linked to higher sexual distress and painful intercourse in women (51), and lower sexual function and sexual satisfaction in men and women (48, 56, 69). Higher infertility-related sexual concerns in particular were linked to lower sexual satisfaction in men and women (74). In a study including couples (75), greater infertility-related emotional stressors were associated with lower sexual desire for men and women. For women, emotional stressors were further connected to their partner's lower sexual satisfaction, while cognitive and behavioral stressors in women were associated with lower sexual arousal in their partners (75).

Qualitative studies further revealed that infertility and MAR can have negative repercussions for the emotional well-being of individuals (76, 77). Indeed, individuals reported a change in their perception of sexuality (e.g., less pleasurable), a negative self-perception (e.g., feeling less masculine, feeling of sexual inadequacy), and negative emotions related to sexuality (e.g., disappointment, hopelessness, guilt).

#### *Relationship factors*

Findings highlight that higher relationship satisfaction and adjustment are linked to higher sexual function in women with infertility or undergoing MAR (60, 65), and with greater sexual satisfaction, lower sexual distress, and fewer infertility-specific sexual concerns in men and women (70, 78). Lower perceived intimacy with one's partner was linked with lower sexual satisfaction in men and women (74). Infertility-related relationship stressors in women were also associated with their own lower sexual desire and orgasm (75).

In men, communication concerns were associated with poorer sexual function (48). El Amiri et al. (78) investigated dyadic coping in couples—the strategies used by both partners to cope with stressors together as a couple. They found that individuals who perceived their partner to engage in more negative dyadic coping reported higher sexual distress and infertility-related sexual concerns. Conversely, men who perceived their partner to be engaging in higher positive dyadic coping reported higher sexual satisfaction. Perception of higher common dyadic coping were associated with lower sexual distress and infertility-related sexual concerns, and higher sexual satisfaction for both partners. Another study revealed that when there was a discordance (actual or perceived by the woman) between the partners' desire for conception, women reported lower sexual satisfaction (79).

Qualitative studies have highlighted repercussions of infertility and MAR for the relationship (76, 77, 80). Some couples encounter difficulties in engaging in discussions about sexuality, leading to challenges in managing the effects of infertility on their sexual life. Conversely, some couples reported adaptive strategies such as fostering intimacy and expanding their sexual repertoire, to enrich their sexual relationship, and sharing information given by health professionals related to sexuality with their partner.

#### **Effects of Psychological Treatment**

Among the ten studies examining the efficacy of psychological interventions in enhancing sexual well-being in the context of infertility, six focused on interventions specifically addressing sexuality (81-86), while four employed general psychological approaches, such as cognitive-behavioral therapy and dialectical therapy (87-90). With the exception of one study (87), all investigations featured a control group; 6 were randomized controlled trials. Furthermore, all interventions exclusively targeted women, except for Arpin et al.'s study (87), which included mixed-gender/sex couples. The interventions varied in session number (ranging from 2 to 11 sessions) and duration (ranging from 1 to 4 hours), and most were administered in a group format ( $n = 7$ ).

Findings indicate that psychological interventions can enhance the sexual well-being of women who are facing infertility. Women undergoing BETTER-based sex counseling exhibited improvements in sexual function, sexual self-efficacy, and sexual satisfaction compared to a control group without intervention (82-84). Similarly, interventions targeting sexual health, such as mindfulness-based sexual counseling and a health-education program based on the beliefs, attitudes, subjective norms, and enabling factors (BASNEF) model demonstrated significant enhancements in women's sexual satisfaction (85, 86), sexual function, quality of sexual relationships (86), and sexual self-efficacy (81) compared to a control group without intervention. General psychological interventions also played a positive role in improving sexual satisfaction (88-90) and all facets of sexual function (90) in women. However, two interventions, namely a couple-based cognitive-behavioral group intervention and dialectical behavior therapy, did not result in significant changes in overall sexual satisfaction in women (87, 88) or infertility-specific sexual concerns for both women and men (87).

### **Accessing Information about Sexuality and the Importance of Sexuality**

Three qualitative studies surveyed participants about their needs regarding sexuality and the relative place that sexuality holds in their MAR journey. The findings highlighted a need to access more information about sexual health in the context of infertility (80, 91). For some women, however, infertility treatments were more important than seeking help for their sexual problems (92).

## **Conclusions**

This systematic review highlights the clear link between infertility, MAR, and lower sexual well-being in both men and women. Our findings emphasize the critical need to address sexual well-being within the context of infertility. It is important to note that this review has limitations. Indeed, it incorporates peer-reviewed papers only, excluding grey literature, and did not use a formal quality assessment system.

### ***Research Implications***

Given the variability in sexual well-being observed across MAR and pregnancy, future research should prioritize the use of longitudinal designs. Such studies would allow for a more in-depth exploration of the dynamic changes in sexual experiences over time and pinpoint specific timepoints and factors linked to these changes, therefore providing a better understanding of the long-term impact of infertility and MAR on sexual wellbeing.

Our review highlights a significant neglect by researchers in considering the experiences of sexual and gender/sex diverse people dealing with social infertility and using MAR, compounding the discrimination and minority stressors for this marginalized population (11). The impact of MAR on their sexuality may differ from that of mixed-gender/sex couples dealing with medical infertility. Unique challenges, including discrimination and prejudice, may be encountered by sexual and gender/sex diverse individuals (10, 11). Future research should address this gap by conducting focused studies on their distinct challenges and experiences of sexual well-being during MAR, especially considering the significant growth of MAR use among 2S/LGBTQ+ populations (11). Researchers should

systematically assess gender, sex, and sexual orientation, justifying the inclusion or exclusion of sexual and gender/sex diverse individuals based on research questions.

The concentration of studies in specific cultural contexts, such as Iran and China, also suggests a need for more diverse cultural and geographical representation in research. The influence of cultural contexts on the interplay between infertility, its treatments, and sexual well-being cannot be overstated because it has implications for the generalizability of findings from culturally-specific regions. Varying cultural beliefs and norms significantly impact perceptions of infertility and sexuality (e.g., pro-natalism, the centrality of motherhood, and patriarchy) (93). These cultural nuances highlight the critical need for studies that encompass the multifaceted influence of cultural contexts on sexual well-being amidst infertility and MAR.

While the present review predominantly identified psychosocial interventions targeting women, there is a potential gap in research focusing on couple-based interventions. Our review underscored that men also report sexual repercussions of infertility and MAR. Future studies could investigate the effectiveness of interventions that involve both partners, recognizing that fertility issues impact couples as a unit. Moreover, with advancements in technology, future research could explore the benefits of incorporating Technology-based interventions (e.g., digital interventions, mobile applications, or online platforms) to provide support and information related to sexual well-being during fertility treatment. Such interventions could reach a broader audience and offer more flexible and accessible resources. Collaborative efforts between researchers, clinicians, and mental health professionals could also lead to the development of multidisciplinary interventions. Integrating psychological, medical, and sexual health perspectives may offer more comprehensive support for individuals undergoing fertility treatment.

### ***Clinical Implications***

Given the prevalence of sexual problems during MAR, health care providers should consider incorporating early assessment of sexual well-being into their overall care plan. Early identification of sexual difficulties can guide appropriate referrals for further evaluation and intervention. Medical staff can also play a crucial role in educating patients about the potential impact of MAR on sexual well-being. Open communication about sexual health may empower individuals to discuss concerns and seek assistance should they be distressed by these difficulties. Collaborative efforts between reproductive medicine specialists and mental health professionals could also ensure a comprehensive approach to addressing both the medical and psychosocial aspects of infertility-related sexual issues.

Given that discomfort and lack of perceived competence is a common barrier to discussing sexual topics with patients (94), health care professionals should seek training as required to integrate sexual assessment and counseling into their support services for infertility. Our findings suggest that tailored psychological interventions can have positive effects on sexual well-being and may contribute to improved outcomes for individuals facing infertility. Recognizing that fertility issues and treatment impact sexual well-being in both women and men, clinicians should provide support to couples, rather

than focusing solely on women. Doing so may allow them to address relationship dynamics influencing sexuality and contribute to a more holistic approach to sexual well-being in the context of infertility.

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**Table 1.** Summary of articles ( $n = 49$ ): Factors associated with sexual well-being in the context of infertility and/or medically assisted reproduction

Study	Country	Study design	Sample characteristics	Sexual measures	Key results
<b>Women only (n = 19)</b>					
Alirezai et al. (60)	Iran	Cross-sectional	<b>Women</b> (total) = 85 women visiting a fertility clinic Mean age: $31.18 \pm 5.56$ Average duration (years) Of infertility: $6.02 \pm 4.47$ Of treatments : $4.11 \pm 4.41$	FSFI and Sexual self-efficacy questionnaire developed based on Schwarzer's General Self-Efficacy Scale	60% reported medium self-efficacy in sexual relationships. 71.8% of women with infertility reported poor sexual performance.  Sexual dysfunction was positively associated with infertility treatment cost and negatively associated with sexual self-efficacy, marital and sexual satisfaction, satisfaction with spouse appearance, income as well as education level.
Alkai et al. (62)	Indonesia	Cross-sectional	<b>Women</b> (total) = 105 women with infertility Mean age: 33.34 Primary infertility: 85.71%	FSFI	58.1% of participants reported high levels of sexual self-efficacy and most of the participants had no sexual dysfunction (93.3%).  Sexual function was positively associated with sensuality, communication, and self-acceptance. Educational and working backgrounds did not yield significant effects on sexual function in women with infertility.
Balsom & Gordon (65)	United-States and Canada	Cross-sectional	<b>Women</b> (total) = 230 women with infertility attempting to conceive without medical assistance Mean age: $30.8 \pm 3.58$ Mean time trying to conceive (months): $21.5 \pm 9.68$	FSFI	<b>Prevalence of sexual dysfunction</b> 49.1% met the sexual dysfunction cutoff  Many factors were positively associated with sexual function. Yearly income and years of education were positively related to sexual function. Marital status also correlated with sexual function; those married, in common-law relationships, or cohabiting reported lower sexual function than those who were not. Women using more fertility monitoring techniques reported greater sexual function. Sexual function was positively associated with fertility quality of life across multiple

					<p>subscales, with mind-body quality of life being the most strongly associated.</p> <p>Many factors were negatively associated with sexual function. Overall sexual function, specifically linked to desire and orgasm, was negatively associated with the duration of trying to conceive. Sexual function was negatively associated with anxiety and depressed mood.</p>
Demirci & Sen (76)	Turkey	Qualitative	<p><b>Women</b> (total) = 11 women diagnosed with primary infertility and treated at a fertility center</p> <p>Mean age: 33.05 ± 3.40</p> <p>Duration of infertility;</p> <p>3-5 years: 33%,</p> <p>6-10 years: 27%,</p> <p>11 years and above: 38%</p>	Semi-structured interview form (12 questions formulated by the researcher according to the literature)	<p>Two themes emerged.</p> <p><b>(1) Perception of sexuality:</b> women reported that after being diagnosed with infertility, sexuality was not associated with pleasure anymore. Some women did not associate infertility with sexuality. Women for whom sexuality was seen as children-oriented associated it with positive emotions.</p> <p><b>(2) Sexual problems:</b> most women reported that the diagnosis of infertility increased sexual problems. Some women associated sexuality with negative emotions such as reluctance, coldness, and stress.</p>
Facchin et al. (51)	Italy	Cross-sectional	<p><b>Women</b> (total) = 269 women attending an infertility unit (data were collected on the day of oocytes retrieval)</p> <p>Mean age: 37.8 ± 4.0 year</p> <p>Primary infertility: 67%</p>	FSFI and Female Sexual Distress Scale-Revise	<p><b>Prevalence of sexual dysfunction</b></p> <p>30% met the sexual dysfunction cutoff</p> <p>Higher levels of distress linked to infertility were found to increase the likelihood of reporting sexual dysfunction among women. Greater social, sexual, and relationship concerns linked were linked to poorer sexual function. Higher distress was associated with increased dyspareunia.</p> <p>Three domains from the FPI (i.e., social, relational, and sexual concerns) were positively associated with nearly all outcomes related to sexual function.</p>

Gremigni et al. (95)	Brazil and Italy	Cross-cultural	<p><b>Women</b> (total) = 528</p> <p>Group 1: 204 Italian women seeking fertility treatment at a clinic Mean age: 36.23 ± 4.48</p> <p>Group 2: 324 Brazilian women seeking fertility treatment at a clinic Mean age: 33.79 ± 5.32</p>	Index of Sexual Satisfaction (ISS)	<p><b>Group 1:</b> sexual difficulties were associated with lower education and increased marital stress due to infertility.</p> <p><b>Group 2:</b> sexual dissatisfaction was associated with infertility related stress.</p> <p>No association were found between age, infertility diagnosis and sexual difficulties.</p>
Huang et al. (44)	Taiwan	Prospective cohort study	<p><b>Women</b> (total) = 145</p> <p>Group 1: 70 pregnant women who underwent IVF Mean age: 34.46 ± 4.52</p> <p>Group 2: 75 pregnant women who conceived naturally (CN) Mean age: 31.53 ± 4.32</p>	FSFI measured at each trimester (three time points)	<p><b>Sexual function trends over trimesters</b></p> <p>Pregnant women who underwent IVF reported an increase of sexual desire, arousal, orgasm, and satisfaction scores in the second trimester followed by a decrease in the third trimester.</p>
Karakas et al. (92)	Turkey	Qualitative	<p><b>Women</b> (total) = 15 women with primary infertility that received infertility treatment for at least 2 years and actively continued infertility treatment Mean age: 26 ± 5.10 Average duration (years) of infertility: 3 ± 1.79</p>	Semi-structured interview	<p>Four themes emerged.</p> <p><b>(1) Negative self-perception:</b> women reported a feeling of inadequacy in their sexual life.</p> <p><b>(2) Negative mood:</b> women associated sexual intercourse with negative emotions such as disappointment, hopelessness, guilt, anger and stress.</p> <p><b>(3) Marriage conflicts:</b> some women reported that they could not talk about sexuality with their partner.</p> <p><b>(4) Health seeking behaviors:</b> women reported that infertility treatment was more important than treatment for their sexual problems.</p>
Kulaksiz (33)	Turkey	Cross-sectional	<p><b>Women</b> (total) = 722</p> <p>Group 1: 234 women with male factor infertility (MFI)</p>	FSFI	Sexual function was positively associated with overall quality of life across all groups.

			<p>Mean age: <math>32.1 \pm 2.9</math>  Duration of infertility (months):  <math>22.8 \pm 6.6</math></p> <p>Group 2: 246 women with female factor infertility (FFI)  Mean age: <math>31.8 \pm 2.8</math>  Duration of infertility (months):  <math>23.8 \pm 6.8</math></p> <p>Group 3: 242 fertile women who had a child in the last year  Mean age: <math>32.2 \pm 2.9</math></p>		
Malina & Suwalska-Barancewicz (39)	Poland	Cross-sectional	<p><b>Women</b> (total) = 80  Group 1: 40 women qualified for IVF  Mean age: <math>31.48 \pm 3.35</math></p> <p>Group 2: 40 mothers  Mean age: <math>31.10 \pm 3.76</math></p>	Sexual Satisfaction Scale (SSS)	A higher level of sexual satisfaction was associated to increased perceived support and decreased conflict in relationship among women who qualified for IVF.
Maroufizadeh et al. (55)	Iran	Cross-sectional	<p><b>Women</b> (total) = 250 women referring to infertility treatment center  Mean age: <math>29.74 \pm 5.29</math></p>	FSFI-6	Sexual dysfunction was negatively associated with higher women's age and unwanted marriage and positively associated with low education, short infertility duration and low frequency of sexual intercourse.
Marvi et al. (71)	Iran	Cross-sectional	<p><b>Women</b> (total) = 102 women with a primary infertility diagnosis  Mean age: <math>30.63 \pm 5.48</math>  Average duration (years) of infertility: <math>6.56 \pm 4.248</math></p>	Golombok-Rust Inventory of Sexual Satisfaction	Sexual satisfaction was positively associated with genital self-image. Sexual satisfaction dimensions like infrequency, non-communication, female avoidance, female non-sexuality, and anorgasmia were negatively associated with genital self-image. No significant correlation was found between genital self-image and vaginismus.
Ndubuisi et al. (22)	Nigeria	Cross-sectional	<p><b>Women</b> (total)= 360 women with an infertility diagnosis  Mean age: <math>35.23 \pm 5.7</math></p>	Fertility Problem Inventory (FPI)	<p><b>Satisfaction with sexual intercourse</b>  <b>Pre-diagnosis:</b> 33.9% of women  <b>Post-diagnosis:</b> 12.2% of women</p>

					Most participants (65%) reported no enjoyment in sex with their partner.
Rakhshae et al. (91)	Iran	Qualitative	<p><b>n</b> (total) = 18 participants</p> <p>15 women attending an infertility center</p> <p>Average duration (years) Of infertility: 3.6</p> <p>Primary infertility: 67%</p> <p>3 key informants (health care workers)</p>	Semi-structured interview	<p>Five themes emerged.</p> <p><b>(1) Informational needs concerning sexual health:</b> women indicated a need to know more about sexual health in the context of infertility.</p> <p><b>(2) Sexual health information seeking:</b> women reported that sexual education is taboo in Iran; therefore, the Internet is a useful resource.</p> <p><b>(3) Informational perception:</b> women reported that using simple terms and images is helpful to better understand the information.</p> <p><b>(4) Validation of information:</b> women reported that they trusted information provided by physicians about sexuality, midwives, and books.</p> <p><b>(5) Application of the information:</b> women reported that they talked more to their partner about sexuality.</p>
Riazi et al. (63)	Iran	Cross-sectional	<p><b>Women</b> (total) = 250</p> <p>Mean age: <math>29.7 \pm 5.2</math></p> <p>Duration of infertility (years): <math>5.5 \pm 3.8</math></p> <p>Group 1: 98 women with infertility and without sexual dysfunction</p> <p>Group 2: 152 women with infertility and sexual dysfunction (60.8%)</p>	FSFI-19 The Multidimensional Sexual Self-Concept Questionnaire (MSSCQ)	<p>Sexual dysfunction was positively associated with women's age and female infertility factor and negatively associated with the husband's age, sexual motivation, and sexual satisfaction.</p> <p>There were no significant associations with educational level, employment, and economic status.</p>
Salomão et al. (40)	Brazil	Case control study	<p><b>Women</b> (total) = 280</p> <p>Group 1: 140 women with infertility</p>	FSFI	Sexual dysfunction was positively associated with anxiety and depression across all women studied.

			Mean age: 36		
			Group 2: 140 women (control) Mean age: 34		
Shahraki et al. (30)	Iran	Cross-sectional	<b>Women</b> (total) = 274  Group 1: 115 fertile women Mean age: 32.9 ± 7.2  Group 2: 78 women with primary infertility Mean age: 31.3 ± 6.2  Group 3: 71 women with secondary infertility Mean age: 32.4 ± 5.4	FSFI-19 Sexual quality of life-Female (SQOL-F)	Sexual function was positively associated with sexual quality of life.
Sheikhian et al. (59)	Iran	Cross-sectional	<b>Women</b> (total) = 230 women attending an infertility center Mean age: 23.37 ± 6.32 Primary infertility: 62.6%	FSFI-19	<b>Prevalence of sexual dysfunction</b> 75.7% met the sexual dysfunction cutoff  Sexual function was positively associated with perceived social support and adherence to treatment.  There was no significant association between infertility factors and sexual function.
Youseflu et al. (47)	Iran	Cross-sectional	<b>Women</b> (total) = 280 women attending an infertility center Mean age: 33 ± 6.37 Primary infertility: 70.5%	FSFI	Sexual satisfaction was negatively associated with anxiety and duration of infertility and positively associated with the level of education.
<b>Men only (n = 5)</b>					
Cao et al. (68)	China	Cross-sectional	<b>Men</b> (total) = 480 men seeking infertility treatment	Premature Ejaculation Diagnostic Tool (PEDT) and IIEF-5	Erectile dysfunction was positively associated with anxiety and depression, with anxiety showing a stronger association. Premature ejaculation was positively associated with anxiety, but no significant was found with depression.

Coward et al. (66)	United-States	Cross-sectional	<b>Men</b> (total) = 708 men from couples diagnosed with unexplained infertility Mean age: 34.2 ± 5.6	IIEF	<b>Prevalence of erectile dysfunction</b> 9% met the erectile dysfunction cutoff  Erectile dysfunction was positively associated with depression and negatively associated with the fertility quality of life.
Dong et al. (46)	China	Cross-sectional	<b>Men</b> (total) = 558 men from couples seeking fertility treatments Mean age: 34.94 ± 5.3	Premature Ejaculation Diagnostic Tool (PEDT) and IIEF-15	An increased risk of erectile dysfunction and premature ejaculation was associated with longer duration of infertility.  Erectile dysfunction was negatively associated with female causes of infertility, secondary infertility, increased frequency of sexual life and quality of couple relationship.  Premature ejaculation was associated with age, infertility diagnosis, stress levels, and quality of couple relationship.
Pasha et al. (57)	Iran	Cross-sectional	<b>Men</b> (total) = 204 men from couples diagnosed with infertility Mean age: 31.77 ± 5.4	IEFF	Sexual desire and orgasmic function were lower than other aspects of sexual function. Erectile function appeared to have the most significant impact on overall sexual function.  Sexual function showed no significant association with age, duration of marriage, housing, economic status, education, infertility causes, treatment effort, or settlement type. Sexual function was positively associated with the wife's marital intimacy and her sexual function (as reported by the male partner).  Sexual dysfunction was less likely to be experienced by employed than unemployed men. It was also less likely to occur when the job of their wives was employed rather than housewives. Sexual dysfunction was

					more likely to occur in men with lower coitus count.
Trinh The et al. (53)	Vietnam	Cross-sectional	<b>Men</b> (total) = 138 men of couples seeking medical treatment for infertility Mean age: 33.07 ± 5.77 Infertility duration (years): 4.37 ± 3.76	IIEF	Prevalence of sexual dysfunction 18.1% met the sexual dysfunction cutoff  Men experiencing erectile dysfunction were more likely to not have graduated from junior high school.
<b>Couples or both men and women (n = 25)</b>					
Allsop et al. (61)	Canada and United-States	Cross-sectional	<b>n (couples)</b> = 120 couples who have undergone medically assisted reproduction in the last 6 months Mean age: 32.98 ± 4.93 Mixed-gender: 82.5% Same-gender: 9.2%	<b>Women:</b> FSFI (sexual desire subscale)  <b>Men:</b> IIEF (sexual desire subscale)  <b>Both:</b> Global Measure of Sexual Satisfaction (GMSEX) One item to assess frequency of sexual intercourse Sexual Distress Scale – Short Form (SDS-SF)	Greater financial burden was associated with lower quality of life which, in turn, predicted reduced sexual satisfaction, desire, and distress for the individual themselves, as well as lower sexual satisfaction for their partner.  Household income did not indirectly predict any aspects of sexual well-being.  No substantial differences between treatment and support partners in the indirect paths related to sexual satisfaction and distress were found. However, treatment partners facing higher perceived financial burden experienced lower sexual satisfaction and higher sexual distress.
Amraei et al. (48)	Iran	Cross-sectional	<b>n (total)</b> = 300 individuals with infertility  <b>Women</b> (n = 150) Mean age: 29.6 ± 5.5 Average duration of infertility (years): 5.6 ± 3.5  <b>Men</b> (n = 150) Mean age: 37.7 ± 7.7 Average duration of infertility (years): 7.2 ± 3.49	<b>Women:</b> FSFI  <b>Men:</b> IIEFF	In women, longer duration of infertility and inability to afford treatment costs were linked to impaired sexual function. In men, there was no significant association between duration or treatment costs and sexual function.  Sexual function was negatively associated with infertility stress in both men and women (stronger association in women). Higher scores in all infertility stress scopes correlated significantly with poorer sexual

					function in both men and women. In men, sexual function was negatively associated with communication concerns (after controlling for other factors). In women, sexual function was negatively associated with sexual concerns (after controlling for other factors).
Carver et Peterson (79)	United-States	Cross-sectional	<p><b>n (couples)</b> = 105 couples who have been in engaging in unprotected intercourse for at least one year without contraception and without a successful pregnancy, and had consulted with a medical provider about their infertility</p> <p><b>Women</b> (n = 105) Mean age: 31.1 ±4.81</p> <p><b>Men</b> (n = 105) Mean age: 33.08 ±5.12</p>	<p><b>Women:</b> FSFI (sexual satisfaction subscale)</p> <p><b>Men:</b> IIEF (sexual satisfaction subscale)</p>	<p>Women's lower sexual satisfaction was positively associated with an actual desire discrepancy in the relationship regarding conception. Women who believed there was a mismatch in desires for conception between themselves and their partners reported lower sexual satisfaction compared to women who didn't perceive such a discrepancy. Men did not exhibit significant differences in sexual satisfaction based on desire discrepancy.</p> <p>Women perceiving a discrepancy in the couple's desire to conceive reported significantly lower sexual satisfaction. In men, results were not statistically significant.</p> <p>No significant association between having one's desire to conceive misperceived by their partner and sexual satisfaction.</p>
Cocchiaro et al. (20)	Italy	Validation of a new specific psychometric tool (cross-sectionnal)	<p><b>n (couples)</b> = 162 couples seeking medically assisted reproduction treatments</p> <p><b>Women</b> (n = 162) Mean age: 36.4 ±4.2</p> <p><b>Men</b> (n = 162) Mean age: 38.8 ±5.2</p>	Sexuality and emotions in Infertility (SEIq)	<p>Among the surveyed women, only 46% reported satisfaction with their sexuality. Lower satisfaction was positively associated with experiencing pain during intercourse (reported by 56% of women), difficulty reaching orgasm (reported by 44% of women), and challenges in completing intercourse (reported by 44% of women).</p> <p>25% of men reported issues such as erection difficulties, penetration problems, challenges</p>

					in achieving orgasms, and ejaculation problems.
El Amiri et al. (75)	Canada and United-States	Cross-sectional	<p><b>n (couples)</b> = 185 couples seeking fertility treatment</p> <p><b>Women</b> (n = 185) Mean age: 31.8 ± 4.7</p> <p><b>Men</b> (n = 185) Mean age: 33.6 ± 4.9</p>	<p><b>Women:</b> FSFI</p> <p><b>Men:</b> IIEF</p>	<p>Lower sexual desire was associated with higher emotional stressors linked to infertility in both men and women. Women experiencing higher emotional stressors also correlated with their partner's decreased sexual satisfaction.</p> <p>Greater mind-body stressors related to infertility didn't directly affect men and women's own sexual aspects (desire, arousal, orgasm, satisfaction). In women, these stressors were associated with their partner's reduced sexual arousal.</p> <p>Relational stressors tied to infertility were linked to the individual's lower sexual arousal and their own as well as their partner's reduced sexual satisfaction in both men and women. In women specifically, higher relational stressors also related to lower sexual desire and orgasm.</p>
El Amiri et al. (78)	Canada	Cross-sectional	<p><b>n (couples)</b> = 232 couples who have undergone fertility treatment in the last 6 months</p> <p><b>Women</b> (n = 232) Mean age: 32.5 ± 4.4</p> <p><b>Men</b> (n = 232) Mean age: 34.4 ± 5.2</p>	<p>Global measure of sexual satisfaction (GMSEX)</p> <p>Sexual distress short form (SDS-SF)</p> <p>Infertility-related sexual concerns (FPI)</p>	<p>Individuals perceiving their partners engaging in higher negative dyadic coping (DC) reported lower sexual well-being. In men, those perceiving higher positive DC from their partners reported higher sexual satisfaction. In women, reported greater infertility-related sexual concerns with partners displaying higher positive DC.</p> <p>Perceptions of higher common DC was linked to higher sexual well-being for both men and women. Women whose partners reported higher common DC had fewer infertility-related sexual concerns.</p>

Fernandes et al. (38)	Portugal	Cross-sectional	<p><b>n (couples)</b> = 107  Mean age (women): 33.07 ± 4  Mean age (men): 35.05 ± 5.5</p> <p><b>Group 1:</b> 63 couples who had an infertility diagnosis  Average duration of infertility (years): 2.43 ± 2.59</p> <p><b>Group 2:</b> 44 couples who were presumably fertile</p>	<p><b>Women:</b> FSFI  <b>Men:</b> IIEFF</p>	<p>Sexual dysfunction was positively associated with depression and anxiety symptoms in both men and women. No significant partner effects were observed. Knowledge of infertility diagnosis moderated the association between male actor depression and male sexual functioning. High depression levels were linked to worse sexual functioning, particularly in Men with infertility.</p>
Hamzehgardeshi et al. (52)	Iran	Cross-sectional	<p><b>n (couples)</b> = 140 couples undergoing fertility treatment and that were referred to a fertility center</p> <p><b>Women</b> (n = 140)  Mean age: 31.0 ± 5.3</p> <p><b>Men</b> (n = 140)  Mean age: 35.2 ± 5.9</p>	<p>Sexual Satisfaction Questionnaire (SSQ)</p>	<p>Sexual satisfaction was significantly lower among women who were economically intermediate. Sexual satisfaction was lower in both men and women that were treated with drug therapy.</p> <p>In both men and women, marital and sexual satisfaction were positively correlated.</p> <p>Many factors were associated with sexual satisfaction. In women, the type of treatment (negatively with aggressive treatments) and cause of infertility was associated with sexual satisfaction. In men, it was associated with the type of treatment (negatively with aggressive treatments), cause of infertility, and being the decision-maker in life.</p>
Ho et al. (67)	Vietnam	Cross-sectional	<p><b>n (couples)</b> = 255 couples who were being examined at a fertility center</p> <p><b>Women</b> (n = 255)  Mean age: 31.29 ± 5.06</p> <p><b>Men</b> (n = 255)  Mean age: 34.33 ± 6.08</p>	<p><b>Women:</b>  FSFI</p> <p><b>Men:</b>  IIEF-15  Premature Ejaculation Diagnostic Tool (PEDT)</p>	<p>In women, sexual function was slightly and negatively associated with depression, anxiety, and stress scores. In men, sexual dysfunction (lower erectile function and higher levels of premature ejaculation symptoms) was positively associated with depression, anxiety, and stress scores.</p>

Khanabadi et al. (80)	Iran	Qualitative	<b>n (couples)</b> = 15 couples undergoing fertility treatment 23 - 62 years old Duration of infertility varying from 5 to 25 years	Semi-structured interview	Three themes emerged. <b>(1) Healthy attitude toward sex:</b> couples attached great importance to sexuality and reported having a healthy attitude towards it. <b>(2) Enriching sexual relationship:</b> couples reported that fostering sexual satisfaction and intimacy as well as expanding their sexual repertoire enriched their sexual relationship. <b>(3) Managing the effect of infertility on sexual satisfaction:</b> couples reported that they tried to limit the negative effects of infertility with sexual amenability.
Kiesswetter et al. (35)	Italy	Cross-sectional	<b>n (couples)</b> = 228 couples diagnosed with infertility and seeking treatment  <b>Women</b> (n = 228) Mean age: 35.16 ± 4.28  <b>Men</b> (n = 228) Mean age: 38.16 ± 5.2	Life Satisfaction Questionnaire (LSQ; sexuality subscale)	Perceived stress, negative affect, and worry were linked to lower satisfaction, while positive affect, partnership quality, social support, and strong desires for children showed positive associations.
Lo et al. (18)	China	Longitudinal	<b>n (couples)</b> = 66 couples undergoing intrauterine insemination Duration of infertility (months): 29.5 ± 16.2  <b>Women</b> (n = 66) Mean age: 32.9 ± 3.0  <b>Men</b> (n = 66) Mean age: 35.4 ± 3.6	<b>Women:</b> FSFI  <b>Men:</b> IIEF-5	Prevalence of sexual dysfunction Women: 26.1% (T1), 23.2% (T2), 17.4% (T3) Men: 42% (T1), 53.6% (T2), 44.9% (T3)  After post hoc analysis, only the increase in mean orgasm FSFI scores between T1 and T3 was statistically significant. There was a noteworthy decrease in the proportion of women reporting a desire problem between T1 and T3. Throughout the IUI cycle, the proportion of men at risk for erectile dysfunction remained relatively stable with no significant changes observed during the different assessment points.  At T1 and T2, there were correlations between female sexual function and female

					quality of life, as well as between male erectile dysfunction and male quality of life. However, at T3, these correlations diminished.
Luk & Loke (74)	China	Cross-sectional	<b>n (couples)</b> = 113 couples referred to a fertility clinic	Fertility-related sexual and relationship concerns Index of Sexual Satisfaction (ISS)	<p>Women expressed more concerns regarding sexual pressure, focus on conception during sex, and frustration over missed days for intercourse compared to men.</p> <p>Men were more likely to perceive their sex life as lacking in quality and felt their partners were less responsive to their sexual needs compared to women.</p> <p>Sexual concerns and dissatisfaction were positively correlated in both men and women.</p>
Mahadeen et al. (64)	Jordan	Cross-sectional	<b>n recruited (couples)</b> = 248 couples attending an IVF clinic  <b>Responses obtained:</b> <b>Women</b> (n = 145) <b>Men</b> (n = 103)	Sexual Satisfaction Questionnaire (SSQ)	Sexual satisfaction was positively associated with perceived social support (from others, family, friends), optimism, life satisfaction, and coping. No significant differences in sexual satisfaction were found based on demographic characteristics (gender, age, work status, education).
Nakić Radoš et al. (56)	Croatia	Cross-sectional	<b>n (couples)</b> = 94 couples seeking infertility treatment  <b>Women</b> (n = 94) Mean age: 34.0  <b>Men</b> (n = 94) Mean age: 35.9	New Sexual Satisfaction Scale (NSSS)	<p>There were no significant differences in sexual satisfaction based on gender or the reported causes of infertility (female factors, male factors, both, or unknown factors).</p> <p>Higher sexual satisfaction in both genders was associated with lower levels of global infertility-related stress, especially sexual and relationship concerns. Sexual satisfaction was not significantly related to demographic variables like age, relationship duration, education, or having children.</p>

					Lower sexual satisfaction was associated with higher infertility related stress for the individual but not the partner. Both individual and partner sexual concerns significantly related to lower sexual satisfaction for both men and women.
Peterson & Buday (54)	United-States	Cross-sectional	<b>n</b> (couples with infertility) = 105  <b>Women</b> (n =105) Mean age: 31.10 ± 4.71  <b>Men</b> (n =105) Mean age: 32.95 ± 5.11	<b>Women:</b> FSFI  <b>Men:</b> IEFF	Variables like age, time trying to conceive, number of infertility-related treatments/tests, and money spent on treatments showed no significant association with self-reported coercion during intercourse for conception.  Experiencing sexual coercion for conception was linked to higher levels of psychological distress and poorer relationship adjustment in men. In women, no significant association found between sexual coercion, sexual function, and distress/relationship quality.  <b>Open-ended questions:</b> Some participants reported feeling coerced or pressured, while others acknowledged conflicts and control related to sex for conception.
Purcell-Lévesque et al. (19)	Canada	Cross-sectional	<b>Sample 1</b> (88 women receiving fertility treatment) Mean age: 32.80 ± 4.52  <b>Sample 2</b> (45 couples receiving fertility treatment) Women (n = 45) Mean age: 32.40 ± 4.91 Men (n = 45) Mean age: 35.42 ± 5.61	Arizona Sexual Experiences Scale Global Measure of Sexual Satisfaction	<b>Prevalence of sexual dysfunction</b> Varying levels of sexual function problems were reported by both women (ranging from 14.8% in pain to 58.0% in desire) and men (ranging from 6.7% in satisfaction with orgasm to 28.9% in desire).  Among women, attachment-related avoidance was associated with lower sexual satisfaction and sexual pain. Women's attachment anxiety was positively associated with lubrication difficulties. Men's attachment-related anxiety was associated with difficulties in erection and orgasm. Men's avoidance was associated with their partners' difficulty in achieving orgasms.

Sahebalzamani et al. (72)	Iran	Cross-sectional	<p><b>n (couples)</b> = 193 couples with primary and secondary infertility referred to a fertility clinic</p> <p><b>Women:</b> FSFI</p> <p><b>Men:</b> IIEF</p> <p><b>Both:</b> Iranian version of the sexual satisfaction questionnaire</p>	<p><b>Prevalence of sexual dysfunction</b> <b>Men:</b> 46.7% had an erectile dysfunction <b>Women:</b> 57% had a sexual dysfunction</p> <p>Sexual function and satisfaction were positively associated with health literacy.</p>
Santona et al. (70)	Italy	Cross-sectional	<p><b>n (total)</b> = 129 individuals diagnosed with infertility seeking care at a fertility clinic</p> <p><b>Women</b> (n = 61) Mean age: 37.4 ± 6.4</p> <p><b>Men</b> (n = 68) Mean age: 40.6 ± 6</p>	<p>Multidimensional Sexuality Questionnaire (MSQ)</p> <p>In women, attachment anxiety was negatively associated with sexual internal control while avoidance of intimacy was negatively associated with sexual anxiety. Sexual satisfaction was positively associated with dyadic adjustment. No significant association between the type of infertility, other infertility factors, thoughts about adoption and sexual variables were found.</p> <p>In men, avoidance of intimacy was positively associated with sexual internal control. Sexual satisfaction was positively associated with dyadic adjustment. Type of infertility and treatment impacted sexual anxiety. No significant association between attachment, dyadic adjustment, and sexual anxiety were found.</p>
Starc et al. (96)	Croatia	Cross-sectional	<p><b>n (total)</b> = 119 individuals from couples undergoing IVF</p> <p><b>Women</b> (n = 61) <b>Men</b> (n = 58)</p>	<p>New Sexual Satisfaction Scale (NSSS)</p> <p><b>(1) Demographic and relationship factors:</b></p> <p>Age was negatively associated with sexual arousal, orgasms, pleasure, focus, partner's orgasm, and emotional engagement. Non-religious participants reported higher satisfaction relative to partner's initiation of sexual activity and variety of sexual activity. Childless participants reported higher</p>

					intensity of orgasms, emotional engagement, variety, and frequency of sexual activity. Fewer than three or more than five partners increased the risk of sexual dysfunction. The duration of the current relationship was negatively associated with mood after sex, balance in sexual activity, partner's commitment, and availability. The education level was associated with various aspects of sexual activity.
Tetecher et al. (69)	Italy	Cross-sectional	<p><b>n (couples)</b> = 151 couples that were either waiting to receive a diagnosis, that had received a diagnosis (43% of women, 34% of men) or that were undergoing treatment (33.5% of couples).</p> <p><b>Women</b> (n = 151) Mean age: 36.7 ± 4.8</p> <p><b>Men</b> (n = 151) Mean age: 39.8 ± 6.6</p>	Arizona Sexual Experience Scale (ASEX)	<p>Sexual dysfunction was negatively associated with emotional regulation as well as emotional and sexological aspects related to infertility in women.</p> <p>The overall functioning of the couple emerged as a more influential factor in predicting sexuality than individual scales related to emotional and sexological aspects of infertility.</p>
Wang et al. (73)	China	Cross-sectional	<p><b>n (couples)</b> = 428 couples visiting a fertility clinic Average duration (years) of infertility: 4.44 ± 3.21</p> <p><b>Women</b> (n = 428) Mean age: 31 ± 1.24</p> <p><b>Men</b> (n = 428) Mean age: 32.42 ± 5.19</p>	<p><b>Women:</b> FSFI</p> <p><b>Men:</b> IIEF</p>	For both men and women, sexual function was linked to their own quality of life through their self-esteem. Men's sexual function significantly mediated their partner's quality of life through their self-esteem, as did women's sexual function for their partner's quality of life through their self-esteem.
Wang et al. (31)	China	Cross-sectional	<p>Group 1: 324 couples diagnosed with infertility Men age: 30.93 ± 5.15 Women (n = 324) Men (n = 324)</p>	<p><b>Women:</b> FSFI</p> <p><b>Men:</b> IIEF</p>	Reduced sexual frequency, partner's erectile dysfunction, and higher depressive symptoms were associated with sexual dysfunction in women with infertility.

			Group 2: 326 women with no infertility history Mean age: 31.40 ± 5.19		
Yilmaz et al. (49)	Turkey	Cross-sectional	<p><b>n</b> (couples visiting a fertility clinic) = 110</p> <p><b>Women</b> (n = 110) Mean age: 33.97 ± 4.89</p> <p><b>Men</b> (n = 110) Mean age: 35.20 ± 5.28</p>	Arizona Sexual Experience Scale (ASEX)	<p>Sexual dysfunction in women was positively associated with age, duration of marriage, type of marriage, duration of treatment, and negatively associated to marriage satisfaction.</p> <p>Sexual dysfunction in men was positively associated with age, duration of marriage, duration of treatment, and negatively associated with economic status and marriage satisfaction.</p>
Zhuoran et al. (77)	China	Qualitative	<p><b>n (couples)</b> = 28 couples experiencing primary infertility and attending a fertility clinic Average duration (years) of infertility: 3.39 ± 1.45</p> <p><b>Women</b> (n = 28) Mean age: 30.71 ± 4.81</p> <p><b>Men</b> (n = 28) Mean age: 34.25 ± 5.22</p>	Semi-structured interview	<p>Four themes emerged.</p> <p><b>(1) Gender identity:</b> some individuals reported that infertility threatened their gender identity.</p> <p><b>(2) Communication about sex:</b> couples reported that discussions about sexuality were limited to their marital sexual life.</p> <p><b>(3) Sexual life:</b> some couples reported that sexual intercourse had become a chore focused on conception. Some couples also reported that sexuality was the dimension on which infertility had the greatest impact.</p> <p><b>(4) Sexual satisfaction:</b> couples reported that having to plan sexual intercourse had a negative impact on their sexual satisfaction.</p>

*Note.* FSFI = Female Sexual Function Index. IIEF = International Index of Erectile Function. IVF = in vitro fertilization.

**Table 2.** Summary of articles ( $n = 49$ ): comparative studies investigating sexual well-being in the context of infertility and/or medically assisted reproduction

Study	Country	Study design	Sample characteristics	Sexuality measures	Key results
<b>Men and women comparison (<math>n = 9</math>)</b>					
Amraei et al. (48)	Iran	Cross-sectional	<p><b>n (total)</b> = 300 individuals with infertility</p> <p><b>Women</b> (<math>n = 150</math>) Mean age: <math>29.6 \pm 5.5</math> Average duration of infertility (years): <math>5.6 \pm 3.5</math></p> <p><b>Men</b> (<math>n = 150</math>) Mean age: <math>37.7 \pm 7.7</math> Average duration of infertility (years): <math>7.2 \pm 3.49</math></p>	<p><b>Women:</b> FSFI <b>Men:</b> IIEF</p>	<p><b>Gender comparison for sexual concerns</b> Women reported higher levels of sexual concerns than men.</p>
Courbiere et al. (97)	France	Cross-sectional	<p><b>n (total)</b> = 1045 individuals diagnosed with infertility that were either pregnant (<math>n = 46</math>), waiting to start MAR (<math>n = 47</math>), undergoing MAR (<math>n = 199</math>), had a live birth following MAR (<math>n = 522</math>), or had dropped out of MAR (<math>n = 221</math>)</p> <p><b>Women</b> (<math>n = 690</math>) Mean age: 38.1 (37.4–38.8)</p> <p><b>Men</b> (<math>n = 355</math>) Mean age: 38.2 (37.2–39.2)</p>	Homemade 56-point questionnaire about the impact of infertility and MAR process on different aspects of the daily-life of patients	<p><b>Frequency of sexual intercourse</b> <b>Women:</b> 21.1% reported having no sexual intercourse for several weeks or months <b>Men:</b> 21.8% reported having no sexual intercourse for several weeks or months</p> <p><b>Gender comparison for frequency of sexual intercourse</b> Men and women did not differ in terms of frequency of sexual intercourse.</p>
Mahadeen et al. (64)	Jordan	Cross-sectional	<p><b>n (couples)</b> = 248 mixed-sex couples diagnosed with infertility and attending a fertility clinic</p> <p><b>Women</b> (<math>n = 145</math>) <b>Men</b> (<math>n = 103</math>)</p>	Sexual Satisfaction Questionnaire (SSQ)	<p><b>Gender comparison for sexual satisfaction</b> Women did not report higher levels of sexual satisfaction than men.</p>

Patel et al. (98)	India	Cross-sectional	<p><b>n (total)</b> = 600 individuals diagnosed with infertility undergoing tests or treatments</p> <p><b>Women</b> (n = 300) Mean age: 29 ± 5</p> <p><b>Men</b> (n = 300) Mean age: 35 ± 5</p>	<p><b>Women:</b> FSFI <b>Men:</b> IIEF</p>	<p><b>Gender comparison for sexual difficulties</b> <b>Women:</b> 75% reported having a sexual dysfunction since marriage and 92% experienced the emergence of sexual difficulties after starting MAR. <b>Men:</b> 60% reported having a sexual dysfunction since marriage and 86% experienced the emergence of sexual difficulties after starting MAR.</p>
Peterson & Buday (54)	United-States	Cross-sectional	<p><b>n (couples)</b> = 105 mixed-sex couples diagnosed with infertility undergoing tests or treatments</p> <p><b>Women</b> (n = 105) Mean age: 31.10 ± 4.71</p> <p><b>Men</b> (n = 105) Mean age: 32.95 ± 5.11</p>	<p><b>Women:</b> FSFI <b>Men:</b> IIEF</p>	<p><b>Gender comparison for verbal pressure to engage in sexual intercourse</b> <b>Men:</b> 37% reported being verbally pressured by their partner to engage in intercourse for conception purposes. <b>Women:</b> 2% reported being verbally pressured by their partner to engage in intercourse for conception purposes.</p>
Santona et al. (70)	Italy	Cross-sectional	<p><b>n (total)</b> = 129 individuals diagnosed with infertility undergoing tests or treatments</p> <p><b>Women</b> (n = 61) Mean age: 37.4 ± 6.4</p> <p><b>Men</b> (n = 68) Mean age: 40.6 ± 6</p>	<p>Multidimensional Sexuality Questionnaire (MSQ)</p>	<p><b>Gender comparison for sexual anxiety, internal sexual control, and sexual satisfaction</b> Women did not report higher levels of sexual anxiety, internal sexual control, and sexual satisfaction than men.</p>
Starc et al. (96)	Croatia	Cross-sectional	<p><b>n (total)</b> = 119 individuals diagnosed with infertility undergoing IVF</p> <p><b>Women</b> (n = 61) <b>Men</b> (n = 58)</p>	<p>New Sexual Satisfaction Scale (NSSS)</p>	<p><b>Gender comparison for sexual satisfaction</b> Men reported a greater intensity of sexual arousal and greater sexual pleasure during sexual activity than women. Compared to men, women reported greater satisfaction with their partner's orgasm ability, their partner's engagement in sexual pleasure, and their partner's sexual availability.</p>

Tetecher et al. (69)	Italy	Cross-sectional	<p><b>n (couples)</b> = 151 couples that were either waiting to receive a diagnosis, that had received a diagnosis (43% of women, 34% of men) or that were undergoing treatment (33.5% of couples).</p> <p><b>Women</b> (n = 151) Mean age: 36.7 ± 4.8</p> <p><b>Men</b> (n = 151) Mean age: 39.8 ± 6.6</p>	Arizona Sexual Experience Scale (ASEX)	<p><b>Prevalence of sexual dysfunction</b> 55.3% met the cutoff for sexual dysfunction</p> <p><b>Gender comparison for sexual function</b> Women reported a greater ability to reach orgasm and orgasm satisfaction than men.</p>
Yilmaz et al. (49)	Turkey	Cross-sectional	<p><b>n (couples)</b> = 110 mixed-sex couples diagnosed with primary infertility and undergoing fertility treatment</p> <p><b>Women</b> (n = 110) Mean age: 33.97 ± 4.89</p> <p><b>Men</b> (n = 110) Mean age: 35.20 ± 5.28</p>	Arizona Sexual Experience Scale (ASEX)	<p><b>Prevalence of sexual dysfunction</b> <b>Women:</b> 77.3% met the sexual dysfunction cutoff <b>Men:</b> 43.6% met the sexual dysfunction cutoff</p> <p><b>Gender comparison for sexual function</b> Compared to women, men reported higher levels of sexual desire, arousal, lubrication, orgasm satisfaction, and a greater ability to reach orgasm. More women than men met the cutoff for sexual dysfunction.</p>
<b>Individuals with versus individuals without infertility (n = 21)</b>					
Bokaie et al. (37)	Iran	Cross-sectional	<p><b>Women</b> (total) = 165 women seeking care in a health center (17.3% had infertility problems) Mean age: 31.30 ± 0.5</p>	FSFI	<p><b>Group comparison for sexual function</b> Women who had infertility did not report more sexual function problems than women who did not have infertility.</p>
Brauner et al. (23)	Denmark	Cross-sectional	<p><b>Men</b> (total) = 423 men seeking care in a hospital Mean age: 32.8</p> <p>Group 1: 149 men with a diagnosis of male factor infertility</p>	Erectile dysfunction was assessed with one homemade question	<p><b>Prevalence of erectile dysfunction</b> <b>Group 1:</b> 14.0% reported an erectile dysfunction <b>Group 2:</b> 4.4% reported an erectile dysfunction</p>

			Group 2: 274 men who had a pregnancy without fertility treatment		
Casu (24)	Italy	Cross-sectional	<p><b>Women</b> (total) = 912 women seeking care at family practices or fertility clinics Mean age: 33.40 ± 5.50</p> <p>Group 1: 481 mothers Group 2: 217 voluntarily childless women</p> <p>Group 3: 214 women diagnosed with primary infertility seeking their first fertility treatment</p>	Positive Sexuality Scale (PSS)	<p><b>Group comparison for positive sexuality</b> Women diagnosed with infertility reported lower levels of positive sexuality than mothers and voluntarily childless women.</p>
Coşkuner et al. (28)	Turkey	Case control study	<p><b>Women</b> (total) = 632 Mean age: 30.7</p> <p>Group 1: 316 women diagnosed with infertility who attended a fertility clinic</p> <p>Group 2: 316 women with no infertility history who attended a gynecology clinic</p>	<p>FSFI The Sexual quality of life scale (SQOL-F)</p>	<p><b>Prevalence sexual dysfunction</b> <b>Group 1:</b> 32.3% met the cutoff for sexual dysfunction <b>Group 2:</b> 23.6% met the cutoff for sexual dysfunction</p> <p><b>Group comparison for sexual function</b> Compared to fertile women, women diagnosed with infertility reported lower levels of overall sexual function, sexual desire, sexual satisfaction, clitoral sensation, and a poorer ability to reach orgasm. The groups did not differ in terms of discomfort during sexual intercourse, lubrication, frequency of sexual intercourse, and sexual quality of life.</p>
Fernandes et al. (38)	Portugal	Cross-sectional	<p><b>n (couples)</b> = 107 mixed-sex couples trying to conceive Mean age women: 33.07 ± 4 Mean age men: 35.05 ± 5.5</p> <p>Group 1: 63 couples trying to conceive diagnosed with primary infertility</p>	<p><b>Women:</b> FSFI <b>Men:</b> IIEF-15</p>	<p><b>Prevalence of sexual dysfunction</b> <b>Group 1:</b> 11.1% (women) and 7.9% (men) met the cutoff for sexual dysfunction <b>Group 2:</b> 13.6% (women) and 9.1% (men) met the cutoff for sexual dysfunction</p> <p><b>Group comparison for sexual function</b> <b>Women:</b> both groups did not differ in terms of overall sexual function, sexual desire, arousal, lubrication, ability to reach orgasm, sexual satisfaction, and pain.</p>

			Average duration of infertility (years) : $2.43 \pm 2.59$		<b>Men:</b> both groups did not differ in terms of overall sexual function, erectile function, ability to reach orgasm, sexual desire, satisfaction with intercourse and overall sexual satisfaction.
			Group 2: 44 couples trying to conceive without having knowledge of a fertility condition		
Ghoneim et al. (25)	Egypt	Cross-sectional	<b>Women (total)</b> = 638 women seeking care at a hospital  Group 1: 306 women diagnosed with female factor infertility Mean age: $31.78 \pm 6.4$ Average duration of infertility (years): $3.73 \pm 3.61$  Group 2: 332 fertile women Mean age: $30.94 \pm 6.46$	FSFI	<b>Group comparison for sexual function</b> The groups did not differ in terms of sexual desire, pain, and overall prevalence of sexual dysfunction. Women diagnosed with infertility reported lower levels of arousal and sexual satisfaction than fertile women.
Gungor et al. (26)	Turkey	Cross-sectional	<b>Women (total)</b> = 268  Group 1: 134 women receiving intrauterine insemination Mean age: $30.1 \pm 4.5$  Group 2: 134 women attending a gynecology clinic that did not report a fertility condition Mean age: $29.5 \pm 4.5$	FSFI	<b>Prevalence of sexual dysfunction</b> <b>Group 1:</b> 31.3% met the cutoff for sexual dysfunction <b>Group 2:</b> 36.5% met the cutoff for sexual dysfunction  <b>Group comparison for sexual function</b> Women receiving intrauterine insemination reported overall lower levels of sexual function, sexual desire, and arousal than women who did not report a fertility condition. However, the groups did not differ in terms of sexual satisfaction, lubrication, ability to reach orgasm, and pain.
Huang et al. (44)	Taiwan	Prospective Cohort Study	<b>Women (total)</b> = 145  Group 1: 70 pregnant women who underwent IVF Mean age: $34.46 \pm 4.52$	FSFI measured at the first (a), second (b), and third (c) trimester of pregnancy	<b>Prevalence of sexual dysfunction for each trimester</b> <b>Group 1:</b> 78.57% (a), 76.12% (b), 83.33% (c) <b>Group 2:</b> 82.67% (a), 75.71% (b), 86.67% (c)  <b>Group comparison for sexual function</b>

			<p>Group 2: 75 pregnant women who conceived naturally Mean age: 31.53 ± 4.32</p>		<p><b>First trimester:</b> compared to women who conceived naturally, women who underwent IVF reported lower levels of arousal, sexual satisfaction, overall sexual function, and higher levels of pain. The groups did not differ in terms of sexual desire, lubrication, ability to reach orgasm, and prevalence of sexual dysfunction.</p> <p><b>Second and third trimesters:</b> the groups did not differ in terms of overall sexual function, sexual desire, arousal, lubrication, ability to reach orgasm, sexual satisfaction, pain, and prevalence of sexual dysfunction.</p>
Jamil et al. (43)	Pakistan	Cross-sectional	<p><b>Men (total) = 90</b></p> <p>Group 1: 45 men diagnosed with primary infertility Mean age: 33.18 ± 7.26</p> <p>Group 2: 45 men seeking care at a clinic for an unrelated problem or accompanying a patient with infertility Mean age: 31.53 ± 4.75</p>	Self-Esteem and Relationship questionnaire (SEAR)	<p><b>Group comparison for sexual performance</b></p> <p>Men diagnosed with infertility reported lower sexual performance than men seeking care at a clinic for a problem unrelated to infertility or men accompanying a patient with infertility.</p>
Kruljac et al. (34)	Sweden	Case-control study	<p><b>Men (total) = 722</b></p> <p>Group 1: 165 subfertile men who are starting or previously underwent fertility treatment Mean age: 35.3 ± 5.4</p> <p>Group 2: 158 subfertile men who did not undergo fertility treatment Mean age: 35.1 ± 5.3</p> <p>Group 3: 199 men (aged-matched) without an infertility history</p>	Sexual Complaints Screener for Men (SCS-M)	<p><b>Group comparison for sexual outcomes</b></p> <p>Compared to men without an infertility history, men with an infertility history reported greater difficulty controlling their ejaculation. The groups did not differ in terms of sexual desire, stimulation needed to get erection, ability to get or maintain erection, difficulty to achieve orgasm, worry about the size or shape of their penis, and pain during or after sexual activity.</p>

Mean age: 36.8 ± 6.6					
Lauterbach et al. (45)	Israel	Case control study	<p><b>Men (total) = 742</b></p> <p>Group 1: 365 men diagnosed with infertility that underwent IVF to conceive Mean age: 34.4 ± 8.9</p> <p>Group 2: 378 men whose partner had a low-risk pregnancy and no previous infertility problems Mean age: 33.8 ± 9.5</p>	<p>IIEF-15 Self-Esteem and Relationship questionnaire (SEAR) Frequency of sexual intercourse</p> <p>Outcomes were measured prior to pregnancy (a), at mid-pregnancy (b), and at 1 year postpartum (c)</p>	<p><b>Prevalence of erectile dysfunction</b> <b>Group 1:</b> 68% (a), 62 (b), 49 (c) <b>Group 2:</b> 14% (a), 10 (b), 12 (c)</p> <p><b>Group comparison for sexual function, sexual performance, and intercourse frequency</b> Compared to presumably fertile men, men diagnosed with infertility reported lower overall sexual function, erectile function, sexual desire, intercourse satisfaction, sexual performance, and rate of sexual intercourse. They also reported higher rates of sexual dysfunction. The groups did not differ in terms of ability to reach orgasm and overall sexual satisfaction. These results are true for all the time points.</p>
Lotfollahi et al. (36)	Iran	Cross-sectional	<p><b>Women (total) = 500</b></p> <p>Group 1: 150 women diagnosed with primary infertility Mean age: 34.4 ± 8.9</p> <p>Group 2: 150 fertile women who had at least one child and no history of infertility Mean age: 29.74 ± 5.29</p>	<p>Multidimensional Sexual Self-Concept Questionnaire (MSSCQ)</p>	<p><b>Group comparison for the subscales of sexual self-concept (MSSCQ)</b> Women diagnosed with primary infertility reported lower sexual satisfaction, power-other sexual control, and fear-of-sex. The groups did not differ in terms of sexual anxiety, sexual self-efficacy, sexual consciousness, motivation to avoid risky sex, sexual control, sexual preoccupation, sexual assertiveness, sexual optimism, sexual problem self-blame, sexual monitoring, sexual motivation, sexual problem management, sexual esteem, sexual self-schemata, sexual problem prevention, sexual depression, and internal sexual control.</p>
Mahmoud (27)	Egypt	Cross-sectional	<p><b>Women (total) = 200 women seeking care at a clinic</b></p> <p>Group 1: 100 women diagnosed with infertility at different stages of fertility assessment or treatment</p>	<p>FSFI</p>	<p><b>Prevalence of sexual dysfunction</b> <b>Group 1:</b> 45% met the cutoff for sexual dysfunction <b>Group 2:</b> 35% met the cutoff for sexual dysfunction</p> <p><b>Group comparison for sexual function</b> Women diagnosed with infertility reported a greater prevalence of sexual dysfunction than women presenting for or already on a contraceptive method. Women diagnosed with infertility also reported lower levels of sexual desire, lubrication, and sexual</p>

			Group 2: 100 women presenting for or already on a contraceptive method		satisfaction. The groups did not differ in terms of arousal, ability to reach orgasm, and pain.
Malina & Suwalska-Barancewicz (39)	Poland	Cross-sectional	<p><b>Women (total) = 80</b></p> <p>Group 1: 40 women with infertility seeking pregnancy Mean age: 31.48 ± 3.35</p> <p>Group 2: 40 new mothers Mean age: 31.10 ± 3.76</p>	Sexual Satisfaction Scale (SSS)	<p><b>Group comparison for sexual satisfaction</b></p> <p>Sexual satisfaction did not differ between the groups.</p>
Poornowrooz et al. (29)	Iran	Cross-sectional	<p><b>Women (total) = 346 women</b> visiting a women's clinic</p> <p>Group 1: 147 women diagnosed with infertility Mean age: 28.38 ± 5.3</p> <p>Group 2: 199 fertile women visiting the clinic for a reason unrelated to fertility Mean age: 27.68 ± 5.2</p>	FSFI	<p><b>Group comparison for sexual function</b></p> <p>Compared to fertile women, women diagnosed with infertility reported lower levels of overall sexual function, sexual desire, arousal, ability to reach orgasm, lubrication, sexual satisfaction, and a poorer ability to reach orgasm.</p> <p><b>Group comparison for sexual violence</b></p> <p>Compared to fertile women, women diagnosed with infertility reported higher levels of sexual violence.</p>
Saadetine et al. (41)	United-States	Cross-sectional	<p><b>Women (total) = 5912</b> sexually active women seeking care at a clinic Mean age: 30.7</p> <p>Group 1: 935 women who underwent fertility treatment</p> <p>Group 2: 4977 women who never underwent fertility treatment</p>	FSFI Female Sexual Distress Scale-Revised (FSDS-R)	<p><b>Prevalence of sexual dysfunction</b></p> <p><b>Group 1:</b> 56.3% met the cutoff for sexual dysfunction <b>Group 2:</b> 54.4% met the cutoff for sexual dysfunction</p> <p><b>Group comparison for the prevalence of sexual dysfunction</b></p> <p>The prevalence of sexual dysfunction did not differ between the groups.</p>
Salomão et al. (40)	Brazil	Case control study	<p><b>Women (total) = 280</b></p> <p>Group 1: 140 women undergoing fertility treatment</p>	FSFI Frequency of sexual intercourse	<p><b>Prevalence of sexual dysfunction</b></p> <p><b>Group 1:</b> 33.57% met the cutoff for sexual dysfunction <b>Group 2:</b> 35% met the cutoff for sexual dysfunction</p>

			<p>Mean age: 36</p> <p>Group 2: 140 women who have not been diagnosed with infertility Mean age: 34</p>		<p><b>Group comparison for frequency of intercourse</b> The groups did not differ in terms of frequency of sexual intercourse.</p> <p><b>Group comparison for sexual function</b> The groups did not differ in terms of sexual desire, lubrication, ability to achieve orgasm, sexual satisfaction, pain, and prevalence of sexual dysfunction. However, women undergoing fertility treatment reported lower levels of arousal than women who have not been diagnosed with infertility.</p>
Shahraki et al. (30)	Iran	Cross-sectional	<p><b>Women (total) = 274</b></p> <p>Group 1: 115 women with no history of infertility Mean age: 32.9 ± 7.2</p> <p>Group 2: 78 women with primary infertility that were candidates for IVF Mean age: 31.3 ± 6.2</p> <p>Group 3: 71 women with secondary infertility that were candidates for IVF Mean age: 32.4 ± 5.4</p>	<p>FSFI Sexual quality of life-Female (SQOL-F)</p>	<p><b>Prevalence of sexual dysfunction</b> <b>Group 1:</b> 44.3% met the cutoff for sexual dysfunction <b>Group 2:</b> 65.4% met the cutoff for sexual dysfunction <b>Group 3:</b> 52.1% met the cutoff for sexual dysfunction</p> <p><b>Group comparison for sexual function</b> The groups did not differ in terms of sexual desire, arousal, lubrication, ability to achieve orgasm, sexual satisfaction, pain, and overall sexual function. The prevalence of sexual dysfunction was higher in women with primary infertility than in women with secondary infertility and in women with no history of infertility.</p> <p><b>Group comparison for sexual quality of life</b> The groups did not differ in terms of their sexual quality of life.</p>
Wang et al. (31)	China	Cross-sectional	<p>Group 1: 324 couples diagnosed with infertility Men age: 30.93 ± 5.15 Women (n = 324) Men (n = 324)</p> <p>Group 2: 326 women with no infertility history Mean age: 31.40 ± 5.19</p>	<p><b>Women:</b> FSFI <b>Men:</b> IIEF</p>	<p><b>Prevalence of sexual dysfunction</b> <b>Group 1:</b> 58.6% met the cutoff for sexual dysfunction <b>Group 2:</b> 50.3% met the cutoff for sexual dysfunction</p> <p><b>Group comparison of sexual function</b> Compared to women with no infertility history, women diagnosed with infertility reported lower levels of overall sexual function, sexual desire, arousal, ability to achieve orgasm, sexual satisfaction, and prevalence of</p>

					sexual dysfunction. The groups did not differ in terms of lubrication, and pain.
Yu et al. (99)	China	Cross-sectional	<p><b>Men (total) = 1256</b></p> <p>Group 1: 159 men seeking medical care for infertility for the first time Mean age: 32.58 ± 4.40</p> <p>Group 2: 437 men who experienced pregnancy loss Mean age: 32.64 ± 4.38</p> <p>Group 3: 310 men seeking preconception care Mean age: 32.82 ± 4.23</p>	<p>IIEF-5</p> <p>Intravaginal Ejaculatory Latency Time (IELT)</p> <p>Premature Ejaculation Diagnostic Tool (PEDT)</p>	<p><b>Prevalence of erectile dysfunction</b></p> <p><b>Group 1:</b> 30.6% met the cutoff for erectile dysfunction</p> <p><b>Group 2:</b> 27% met the cutoff for erectile dysfunction</p> <p><b>Group 3:</b> 9.3% met the cutoff for erectile dysfunction</p> <p><b>Prevalence of premature ejaculation</b></p> <p><b>Group 1:</b> 20.8% met the premature ejaculation cutoff</p> <p><b>Group 2:</b> 18.5% met the premature ejaculation cutoff</p> <p><b>Group 3:</b> 11.9% met the premature ejaculation cutoff</p> <p><b>Group comparison for sexual outcomes</b></p> <p>Compared to men seeking preconception care, men with infertility and men who experienced pregnancy loss reported a higher prevalence of sexual dysfunction, higher rates of premature ejaculation, and practiced timed intercourse more often.</p>
Zayed & Adel El-Hadidy (42)	Egypt	Cross-sectional	<p><b>Women (total) = 284</b></p> <p>Group 1: 134 women with primary infertility seeking fertility treatment Mean age: 48.64 ± 5.46</p> <p>Group 2: 150 women who had children Mean age: 47.17 ± 7.98</p>	<p>Self-esteem and Relationship Questionnaire (SEAR)</p>	<p><b>Group comparison for sexual outcomes</b></p> <p>Women with primary infertility reported lower levels of sexual satisfaction and sexual self-esteem compared to women who had children.</p>
<b>Comparison by infertility type, treatment status or duration (n = 7)</b>					
Dong et al. (46)	China	Case-control study	<p><b>Men (total) = 558 men seeking fertility treatment</b> Mean age: 34.94 ± 5.30</p> <p>Groups based on their infertility duration</p> <p>Group 1 (≤2 year): 175</p> <p>Group 2 (2–5 years): 181</p> <p>Group 3 (5–8 years): 123</p>	<p>IIEF</p> <p>Premature Ejaculation Diagnostic Tool (PEDT)</p>	<p><b>Prevalence of erectile dysfunction</b></p> <p><b>Group 1:</b> 48% met the cutoff for sexual dysfunction</p> <p><b>Group 2:</b> 48.1% met the cutoff for sexual dysfunction</p> <p><b>Group 3:</b> 56.1% met the cutoff for sexual dysfunction</p> <p><b>Group 4:</b> 70.9% met the cutoff for sexual dysfunction</p> <p><b>Prevalence of premature ejaculation</b></p> <p><b>Group 1:</b> 6.3%</p> <p><b>Group 2:</b> 11%</p>

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Group 4 (>8 years): 79

**Group 3:** 17.9%

**Group 4:** 15.2%

**Comparison by infertility duration**

**Global sexual function:** men in groups 3 and 4 reported lower sexual function than men in groups 1 and 2. **Sexual desire:** men in groups 3 and 4 reported lower sexual desire than men in group 1. **Erectile function:** men in group 4 reported lower erectile function than men in group 2. Compared to men in group 1, men in groups 3 and 4 reported lower erectile function. Men in group 4 reported a greater prevalence of mild to moderate erectile dysfunction than men in groups 1, 2 and 3. The prevalence of men who reported having no erectile dysfunction was greater in groups 1, 2 and 3 compared to group 4. **Orgasmic function:** men in groups 3 and 4 reported lower orgasmic function than men in groups 1 and 2. **Intercourse satisfaction:** men in groups 3 and 4 reported lower intercourse satisfaction than men in group 1. **Premature ejaculation:** the absence of premature ejaculation was more prevalent in groups 1 and 2 than in groups 3 and 4. The incidence of probable premature ejaculation was greater in groups 3 and 4 than in groups 1 and 2. The incidence of premature ejaculation was greater in group 4 than in group 3. It was also greater in group 3 than groups 1 and 2. **Duration of intercourse:** compared to groups 1, 2 and 3, more men in group 4 reported having intercourse that lasts less than 1 minute or between 5 and 7 minutes. **Sexual frequency, duration of foreplay, dyspareunia:** there was no significant difference between the groups.

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Ghorbani et al. (50)	Iran	Cross-sectional	<p><b>Women (total) = 180</b></p> <p>Group 1: 90 women with recurrent implantation failure (RIF) referred to a fertility clinic</p> <p>Mean age: 33.34 ± 5.34</p>	FSFI	<p><b>Comparison by infertility duration</b></p> <p>Compared to women who had not started fertility treatment, women with RIF who had a significantly longer duration of infertility reported lower levels of overall sexual function, sexual desire, lubrication, arousal, ability to achieve orgasm, pain, and sexual satisfaction.</p>
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			<p>Mean duration of infertility (years): <math>7.48 \pm 3.29</math></p> <p>Group 2: 90 women with infertility referred to a fertility clinic who had not started treatment  Mean age: <math>31.03 \pm 5.56</math>  Mean duration of infertility (years): <math>4.81 \pm 3.29</math></p>		
Kulaksiz (33)	Turkey	Cross-sectional	<p><b>Women (total) = 722</b></p> <p>Group 1: 234 women with male factor infertility (MFI)  Mean age: <math>32.1 \pm 2.9</math>  Duration of infertility (months): <math>22.8 \pm 6.6</math></p> <p>Group 2: 246 women with female factor infertility (FFI)  Mean age: <math>31.8 \pm 2.8</math>  Duration of infertility (months): <math>23.8 \pm 6.8</math></p> <p>Group 3: 242 women with no infertility history who had a child in the last year  Mean age: <math>32.2 \pm 2.9</math></p>	FSFI	<p><b>Comparison by infertility type</b></p> <p>Compared to women with MFI, women with FFI reported lower levels of arousal, lubrication, sexual satisfaction, pain, and overall sexual function. Women with MFI and FFI did not differ in terms of sexual desire and ability to achieve orgasm. Women with MFI and FFI did not differ in terms of sexual desire and ability to achieve orgasm. Women with no infertility history reported higher levels of overall sexual function, arousal, ability to achieve orgasm, sexual satisfaction, and pain than women with MFI and FFI. Women with no infertility history did not differ from women with MFI in terms of lubrication.</p>
Le Goff et al. (100)	France	Cross-sectional	<p><b>n (total) = 111</b> individuals diagnosed with infertility that were either waiting to start MAR with donor sperm (<math>n = 29</math>) or currently undergoing MAR with donor sperm (<math>n = 79</math>)</p> <p><b>Women (n = 61)</b>  <b>Men (n = 50)</b></p>	<p><b>Women:</b> FSFI  <b>Men:</b> IIEF</p>	<p><b>Prevalence of sexual dysfunctions</b></p> <p><b>Women:</b> 39.3% met the cutoff for sexual dysfunction  <b>Men:</b> 26.5% met the cutoff for sexual dysfunction</p> <p><b>Sexual dysfunction comparison by treatment status</b></p> <p>The prevalence of erectile dysfunction did not differ between men who had not started MAR and men currently undergoing ART. The prevalence of sexual dysfunction did not differ between women who had not started MAR and women currently undergoing ART.</p>

Lo et al. (58)	China	Cross-sectional	<p><b>n (couples)</b> = 235  Mean age (women): 34.3 ± 3.0  Mean age (men): 37.7 ± 5.2  Duration of infertility (months): 48.2 ± 30.1</p> <p>Group 1: 75 couples undergoing intrauterine insemination (IUI)</p> <p>Group 2: 60 couples undergoing IVF</p>	<p><b>Women:</b> FSFI  <b>Men:</b> IIEF-5</p>	<p><b>Prevalence of sexual dysfunction</b>  <b>Women:</b> 22.6% met the cutoff for sexual dysfunction  <b>Men:</b> 39.1% met the cutoff for sexual dysfunction</p> <p><b>Sexual function comparison by treatment type</b>  Women who underwent IUI did not differ from women who underwent IVF in terms of sexual desire, arousal, lubrication, ability to achieve orgasm, sexual satisfaction, pain, and overall sexual function. Men who underwent IUI did not differ from men who underwent IVF in terms of overall sexual function.</p>
Ma et al. (101)	China	Cross-sectional	<p><b>Men (total)</b> = 387</p> <p>Group 1: 258 men with primary infertility  Mean age: 31.4 ± 3.8</p> <p>Group 2: 129 men with secondary infertility  Mean age: 38.8 ± 5.7</p>	IIEF-5	<p><b>Prevalence of erectile dysfunction</b>  <b>Group 1:</b> 26.7% met the cutoff for sexual dysfunction  <b>Group 2:</b> 46.5% met the cutoff for sexual dysfunction</p> <p><b>Sexual function comparison by type of infertility</b>  Compared to men with primary infertility, men with secondary infertility reported a greater prevalence of erectile dysfunction, lower levels of overall sexual function, sexual desire, frequency of sexual intercourse, and sexual satisfaction.</p>
Yu et al. (102)	China	Cross-sectional	<p><b>Men (total)</b> = 509 men assessed for infertility</p> <p>Group 1: 170 men who never received a routine infertility work-up or done so recently within the last 6 months (unaware of sperm quality)  Mean age: 31.9 ± 4.35</p> <p>Group 2: 339 men who previously received a sperm quality assessment at least 6 months or more prior (aware of sperm quality)  Mean age: 32.9 ± 4.39</p>	IIEF-5	<p><b>Prevalence of erectile dysfunction</b>  30.6% met the cutoff for sexual dysfunction</p> <p><b>Sexual outcomes comparison by sperm quality awareness</b>  Men who were aware of their sperm quality practiced time intercourse more often than men who were unaware of their sperm quality.</p>

<b>Comparison by presence or absence of sexual dysfunction (n = 1)</b>					
Riazi et al. (63)	Iran	Cross-sectional	<p><b>Women (total) = 250 women</b> attending a fertility clinic  Mean age: 29.7 ± 5.2  Duration of infertility (years): 5.5 ± 3.8</p> <p>Group 1: 98 women with infertility and without sexual dysfunction</p> <p>Group 2: 152 women with infertility and sexual dysfunction</p>	FSFI The Multidimensional Sexual Self-Concept Questionnaire (MSSCQ)	<p><b>Prevalence of sexual dysfunction</b>  60.8% met the cutoff for sexual dysfunction</p> <p><b>Group comparison for the frequency of sexual intercourse</b>  Compared to women without sexual dysfunction, women with sexual dysfunction reported lower frequency of sexual intercourse.</p> <p><b>Group comparison for the sexual self-concept</b>  Compared to women without sexual dysfunction, women with sexual dysfunction reported higher levels of sexual anxiety, lack in sexual control, and sexual depression. They also reported lower levels of sexual self-efficacy, sexual consciousness, motivation to avoid risky sex, sexual assertiveness, sexual motivation, sexual problem management, sexual self-esteem, sexual satisfaction, sexual self-schemata, sexual problem prevention, and internal sexual control. Both groups did not differ in terms of sexual preoccupation, sexual optimism, sexual problem self-blame, sexual monitoring, sexual control, and fear of sex.</p>
<b>Comparison by country (n = 1)</b>					
Gremigni et al. (95)	Brazil and Italy	Cross-sectional Cross-cultural	<p><b>Women (total) = 528</b></p> <p>Group 1: 204 Italian women seeking fertility treatment at a clinic  Mean age: 36.23 ± 4.48</p> <p>Group 2: 324 Brazilian women seeking fertility treatment at a clinic  Mean age: 33.79 ± 5.32</p>	Index of Sexual Satisfaction (ISS)	<p><b>Prevalence of clinical-level sexual dissatisfaction</b>  Group 1: 34.31% scored above the clinical cutoff  Group 2: 43.52% scored above the clinical cutoff</p> <p><b>Group comparison for sexual satisfaction</b>  Brazilian women reported lower levels of sexual satisfaction than Italian women.</p>
<b>Psychological intervention effects (n = 10)</b>					
Arpin et al. (87)	Canada	Quasi-experimental within-	<b>n (couples) = 29 couples</b> undergoing treatment at a fertility clinic	Fertility Problem Inventory (FPI); sexual concerns subscale)	<b>Pre-test and post-test comparison</b>

		subject study with pre-test post-test design	<p>Mean age (women): 32.52 ± 4.92</p> <p>Mean age (men): 34.41 ± 4.08</p> <p>Fertility treatment duration:</p> <p>Less than 1 year: 31.0%</p> <p>1 to 3 years: 62.1%</p> <p>More than 3 years: 6.9%</p> <p>Intervention: 6 group sessions of couples cognitive-behavioral intervention</p>	Global Measure of Sexual Satisfaction (GMSEX)	Following the intervention, men and women did not report significant improvements in sexual satisfaction or infertility-specific sexual concerns.
Banaha et al. (81)	Iran	Randomized controlled clinical trial	<p><b>Women</b> (total) = 72 women diagnosed with infertility but not undergoing treatment</p> <p>Mean age: 30.30 ± 5.01</p> <p>Duration of infertility (years): 4.01 ± 2.78</p> <p>Primary infertility: 71.4%</p> <p>Group 1: 36 women in the intervention group</p> <p>Intervention: 4 group sessions on sexual skills training and relaxation techniques</p> <p>Group 2: 36 women in the control group who did not receive the intervention</p>	Sexual Self-Efficacy Scale (SSES)	<p><b>Pre-test and post-test comparison</b></p> <p>Compared to women who did not receive the intervention, women who received the intervention reported an improvement in sexual self-efficacy one week after the intervention.</p>
Dastaran et al. (82)	Iran	Randomized controlled clinical trial	<p><b>Women</b> (total) = 80 women referred to a fertility clinic</p> <p>Group 1: 40 women who received the intervention</p> <p>Mean age: 29.69 ± 5.28</p> <p>Duration of infertility (years): 3.74 ± 3.85</p>	FSFI Sexual Quality of Life Female (SQOL-F)	<p><b>Pre-test, post-test, and group comparison for sexual function</b></p> <p>Compared to women who did not receive the intervention, women who received the intervention reported a greater improvement in sexual desire, arousal, lubrication, ability to achieve orgasm, sexual satisfaction, pain, and overall sexual function 4 and 8 weeks after the intervention.</p>

			<p>Intervention: 4 individual sessions based on the BETTER sex counselling</p> <p>Group 2 (control): 40 women who did not receive the intervention Mean age: <math>29.35 \pm 5.64</math> Duration of infertility (years): <math>3.36 \pm 3.27</math></p>		<p><b>Pre-test, post-test, and group comparison for sexual quality of life</b> Compared to women who did not receive the intervention, women who received the intervention reported a greater improvement in their ability to have a satisfactory emotional and interpersonal sexual relationship, sexual self-expression, sexual skills, sexual self-efficiency, and sexual self-efficacy.</p>
Karakas et Aslan (83)	Turkey	Case control study	<p><b>Women</b> (total) = 70 women with primary infertility visiting a fertility clinic Mean age: <math>29 \pm 4.68</math></p> <p>Group 1: 35 women who received the intervention Intervention: 2 individual sessions based on the BETTER sex counselling</p> <p>Group 2 (control): 35 women who did not receive the intervention</p>	FSFI Golombok-Rust Sexual Satisfaction Scale (GRISS)	<p><b>Pre-test, post-test, and group comparison for sexual function</b> Compared to women who did not receive the intervention, women who received the intervention reported an improvement in sexual desire, arousal, ability to achieve orgasm, pain, and overall sexual function. However, the groups did not differ in terms of sexual lubrication and sexual satisfaction.</p> <p><b>Pre-test, post-test, and group comparison for sexual satisfaction</b> Compared to women who did not receive the intervention, women who received the intervention reported an improvement in their satisfaction with regards to frequency of sexual intercourse, sexual communication, orgasm, avoiding, touching, vaginismus, anorgasmia, and overall sexual satisfaction 3 months after the intervention.</p>
Kerchi et al. (88)	Iran	Randomized controlled clinical trial	<p><b>Women</b> (total) = 45 women diagnosed with infertility seeking IVF</p> <p>Group 1: 15 women who received an intervention Mean age: <math>39.6 \pm 3.26</math> Duration of infertility (years): <math>5.52 \pm 1.86</math></p>	Sexual Satisfaction Scale for women (SSS-W)	<p><b>Pre-test, post-test, and group comparison for sexual satisfaction</b> Compared to women who did not receive an intervention and women who received dialectical behavior therapy, women who received psychological empowerment therapy reported an improvement in sexual satisfaction 45 days after the intervention.</p>

			<p>Intervention: 11 group sessions of psychological empowerment therapy</p> <p>Group 2: 15 women who received an intervention Mean age: <math>39.8 \pm 2.77</math> Duration of infertility (years): <math>5.15 \pm 1.72</math> Intervention: 8 group sessions of dialectical behavior therapy</p> <p>Group 3 (control): 15 women who did not receive an intervention Mean age: <math>40 \pm 1.90</math> Duration of infertility (years): <math>5.68 \pm 1.91</math></p>		
Kim et al. (89)	Korea	Quasi-experimental study with a nonequivalent control group pretest-posttest design	<p><b>Women</b> (total) = 50 women diagnosed with infertility who had undergone IVF and were in the rest stage</p> <p>Group 1: 26 women who received the intervention Intervention: 6 group sessions psychological intervention</p> <p>Group 2 (control): 24 women who did not receive the intervention</p>	Sexual satisfaction tool Marital intimacy tool	<p><b>Pre-test, post-test, and group comparison for marital intimacy and sexual satisfaction</b></p> <p>Compared to women who did not receive the intervention, women who received the intervention reported a greater improvement in marital intimacy and sexual satisfaction.</p>
Mohammadzadeh et al. (84)	Iran	Randomized controlled clinical trial	<p><b>Women</b> (total) = 71 women with primary infertility that were not undergoing IVF</p> <p>Group 1: 36 women who received the intervention</p>	FSFI	<p><b>Pre-test, post-test, and group comparison for sexual function</b></p> <p>Compared to women who did not receive the intervention, women who received the intervention reported an improvement in sexual desire, arousal, lubrication, sexual satisfaction, ability to achieve</p>

			<p>Mean age: <math>34.02 \pm 5.33</math>  Duration of infertility (years): <math>4.63 \pm 4.44</math>  Intervention: 2 individual sessions based on the BETTER sex counselling</p> <p>Group 2 (control): 36 women who did not receive the intervention  Mean age: <math>31.80 \pm 5.59</math>  Duration of infertility (years): <math>4.77 \pm 3.31</math></p>		<p>orgasm, and overall sexual function 2 months after the intervention. The groups did not differ in terms of pain.</p>
Nejad et al. (85)	Iran	Randomized controlled clinical trial	<p><b>Women</b> (total) = 44 women diagnosed with infertility  Mean age: <math>30.05 \pm 4.9</math>  Duration of infertility (years): <math>6.83 \pm 4.27</math></p> <p>Group 1: 44 women who received the intervention  Intervention: 8 group sessions of sexual counseling based on a mindfulness approach</p> <p>Group 2 (control): 44 women who received the intervention</p>	Sexual satisfaction questionnaire	<p><b>Pre-test, post-test, and group comparison for sexual satisfaction</b>  Compared to women who did not receive the intervention, women who received the intervention reported an improvement in sexual satisfaction 8 and 12 weeks after the intervention.</p>
Sahraeian et al. (90)	Iran	Randomized controlled clinical trial	<p><b>Women</b> (total) = 52 women diagnosed with infertility</p> <p>Group 1: 26 women who received the intervention  Mean age: <math>30.11 \pm 7.16</math>  Duration of infertility (years): <math>5.58 \pm 3.31</math>  Intervention: 6 group sessions of sexual therapy</p>	FSFI	<p><b>Pre-test, post-test, and group comparison for sexual function</b>  Compared to women who did not receive the intervention, women who received the intervention reported an improvement in sexual desire, arousal, lubrication, sexual satisfaction, ability to achieve orgasm, pain, and overall sexual function immediately after the intervention. These differences were also observed 1 month after the intervention.</p>

			based on a cognitive behavioral approach		
			Group 2 (control): 26 women who did not receive the intervention Mean age: $29.92 \pm 3$ Duration of infertility (years): $5 \pm 3$		
Shahbazi et al. (86)	Iran	Non-randomised experimental study	<p><b>Women</b> (total) = 80 with at least 4 years of primary infertility</p> <p>Group 1: 40 women who received the intervention Mean age: <math>31.9 \pm 5.54</math> Duration of infertility (years): <math>6.47 \pm 3.65</math> Intervention: 4 group sessions of health education based on the BASNEF model</p> <p>Group 2 (control): 40 women who did not receive the intervention Mean age: <math>31.4 \pm 6</math> Duration of infertility (years): <math>6.77 \pm 2.85</math></p>	Sexual health satisfaction and satisfaction with quality of sexual relationships were assessed with a single item (yes/no)	<b>Pre-test, post-test, and group comparison</b> Compared to women who did not receive the intervention, women who received the intervention reported an improvement in overall sexual function and satisfaction with the quality of their sexual relationships 1 and 2 months after the intervention.

*Note.* FSFI = Female Sexual Function Index. IIEF = International Index of Erectile Function. IVF = in vitro fertilization.

**Figure 1.** Flow chart for selection of articles included in the review.

