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Biological and Cognitive-Behavioral Etiology and Treatment of Female Orgasmic Disorder: A Narrative Review

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ABSTRACT

Female orgasmic disorder (FOD) is a prevalent sexual dysfunction affecting approximately 11–42% of women worldwide. This condition is characterized by marked delay in, infrequency of, reduced intensity of, or absence of orgasm, causing significant distress. This narrative review examines the biological and cognitive-behavioral etiological factors underlying FOD and synthesizes the current evidence on treatment approaches. Biological factors include neuroanatomical substrates involving cortical, subcortical, and brainstem regions, autonomic nervous system dynamics, hormonal influences, and iatrogenic causes. Cognitive-behavioral factors include spectatoring, cognitive distraction, maladaptive sexual beliefs, performance anxiety, attentional deficits in interoceptive awareness, and behavioral avoidance. Treatment approaches, including directed masturbation programs, sensate focus techniques, cognitive restructuring, mindfulness-based interventions, and pharmacological options, were evaluated. Meta-analytic evidence demonstrates that cognitive-behavioral therapy significantly improves overall sexual function, with directed masturbation showing the strongest evidence for the treatment of lifelong FOD. Mindfulness-based cognitive therapy shows promise in enhancing interoceptive awareness and reducing spectatoring. An integrated biopsychosocial treatment model incorporating both biological and cognitive-behavioral components is recommended for comprehensive clinical management of FOD.

Keywords: Cognitive-behavioral therapy, directed masturbation, female orgasmic disorder, mindfulness, sexual dysfunction, spectatoring.

ÖZ

Kadın Orgazm Bozukluğunun Biyolojik ve Bilişsel Davranışçı Etiyolojisi ve Tedavisi: Anlatı Derlemesi

Kadın orgazm bozukluğu (KOB), dünya genelinde kadınların yaklaşık %11–42'sini etkileyen, belirgin gecikme, seyreklik, yoğunlukta azalma veya orgazm yokluğu ile karakterize edilen ve önemli sıkıntıya neden olan yaygın bir cinsel işlev bozukluğudur. Bu anlatı derlemesi, KOB'un altında yatan biyolojik ve bilişsel davranışçı etiyolojik etkenleri ele alarak tedavi yaklaşımlarına ilişkin güncel kanıtları incelemektedir. Biyolojik etkenler arasında kortikal, subkortikal ve beyin sapı bölgelerini içeren nöroanatomik yapılar; otonom sinir sistemi dinamikleri, hormonal etkiler ve iyatrojenik nedenler yer almaktadır. Bilişsel davranışçı etkenler ise kendini gözlemek ve bilişsel dikkat dağınıklığı, uyumsuz cinsel inançlar, performans kaygısı, bedensel duyumlara farkındalığa ilişkin dikkat eksiklikleri ve davranışsal kaçınma örüntülerini kapsamaktadır. Yönlendirilmiş mastürbasyon programları, duyusal odaklanma teknikleri, bilişsel yeniden yapılandırma, farkındalık temelli müdahaleler ve farmakolojik seçenekler dahil tedavi yaklaşımları

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değerlendirilmektedir. Meta-analitik kanıtlar, bilişsel davranışçı terapinin genel cinsel işlevi önemli ölçüde iyileştirdiğini göstermekte olup, yönlendirilmiş mastürbasyon yaşam boyu süren KOB için en güçlü kanıta sahiptir. Farkındalık temelli bilişsel terapi, beden duyumlarına farkındalığı artırma ve seyirciliği azaltmada umut vadetmektedir. Kapsamlı klinik yönetim için hem biyolojik hem de bilişsel davranışçı bileşenleri içeren bütünleşik bir biyopsikososyal tedavi modeli önerilmektedir.

Anahtar Kelimeler: Bilişsel davranışçı terapi, cinsel işlev bozukluğu, farkındalık, kendini gözlemek, kadın orgazm bozukluğu, yönlendirilmiş mastürbasyon.

INTRODUCTION

Female orgasmic disorder (FOD) is one of the most prevalent sexual dysfunctions encountered in clinical practice, affecting a substantial proportion of women across diverse cultural contexts and age groups. According to the Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5), FOD is characterized by the presence of either a marked delay in, marked infrequency of, or absence of orgasm, or markedly reduced intensity of orgasmic sensations, experienced on almost all or all (approximately 75–100%) occasions of sexual activity (American Psychiatric Association, 2013). These symptoms must persist for a minimum of approximately six months and cause clinically significant distress to the individual. The DSM-5 classification further distinguishes between lifelong and acquired subtypes, as well as between generalized and situational presentations, providing a framework for understanding the heterogeneous nature of this condition.

Epidemiological data reveal considerable variability in prevalence estimates, reflecting methodological differences in assessment and cultural factors that influence sexual expression. The reported prevalence of female orgasmic problems ranges from 10% to 42%, depending on factors such as age, culture, symptom duration, and severity criteria employed (McCabe et al, 2016). The Global Study of Sexual Attitudes and Behaviors found that for women aged 40–80 years, the inability to achieve orgasm varies across world regions, with frequencies ranging from 10% in Northern Europe to 34% in Southeast Asia (Laumann et al, 2005). The PRESIDE study, which included over 30,000 American women, estimated the prevalence of orgasm dysfunction at approximately 21% (Shifren et al, 2008). These figures underscore the clinical significance of FOD as a common concern that warrants systematic research attention.

The impact of FOD extends beyond the immediate sexual experience to influence broader domains of psychological wellbeing, relational satisfaction, and quality of life (Meston et al, 2004). Women with orgasmic difficulties often report decreased sexual satisfaction, reduced relationship quality, and increased psychological distress. The etiology of FOD is multifactorial and involves complex interactions among biological vulnerabilities, psychological factors, interpersonal dynamics, and sociocultural influences. This complexity necessitates an integrative biopsychosocial approach to conceptualization and treatment.

This narrative review comprehensively examines the biological and cognitive-behavioral factors implicated in the etiology of FOD and synthesizes the current evidence regarding treatment approaches. The review aims to provide clinicians with an evidence-based framework for understanding and treating this prevalent condition by integrating neurobiological findings with cognitive-behavioral formulations. Special attention is devoted to treatment modalities within the cognitive-behavioral therapy (CBT) tradition, including directed masturbation, sensate focus, cognitive restructuring, and emerging mindfulness-based interventions.

DIAGNOSTIC CONSIDERATIONS

Accurate diagnosis of FOD requires careful clinical assessment to distinguish it from other sex dysfunctions and to identify relevant subtypes that may inform treatment selection. The DSM-5 criteria specify that the dysfunction must not be better explained by a nonsexual mental disorder, relationship distress, partner violence, or other significant stressors and must not be attributable to the effects of a substance, medication, or another medical condition (APA, 2013). The clinician must also determine whether the presentation represents inadequate sexual stimulation, which would not warrant a diagnosis of FOD.

The distinction between lifelong and acquired FOD has significant clinical implications. Lifelong FOD indicates the presence of orgasmic difficulties since the individual became sexually active, whereas acquired FOD develops after a period of relatively normal orgasmic functioning. Similarly, the generalized versus situational distinction specifies whether difficulties occur across all contexts or only with certain types of stimulation, situations, or partners. A woman who achieves orgasm during masturbation but not during partnered activity would be classified as having situational FOD, whereas a woman who has never experienced orgasm under any circumstances would meet the criteria for lifelong, generalized FOD.

Clinical consensus holds that a woman who can obtain orgasm during intercourse with manual clitoral stimulation but not through vaginal penetration alone would not typically meet the criteria for FOD unless she experiences significant distress about this pattern (Graham, 2010). This recognition shows that most women need direct clitoral stimulation to reach orgasm, and expecting orgasm from vaginal penetration alone is often unrealistic and based on outdated views of female sexuality.

Assessment should encompass a thorough medical history to identify potential organic contributors, including neurological conditions (e.g., multiple sclerosis, spinal cord injury, and pelvic nerve damage), endocrine disorders, and medication effects. A comprehensive psychosexual history explores developmental factors, relationship dynamics, trauma history, and current stressors. Validated instruments, such as the Female Sexual Function Index and the Female Sexual Distress Scale, can provide a standardized assessment of symptom severity and associated distress.

BIOLOGICAL ETIOLOGY

Neuroanatomical Substrates

Functional neuroimaging studies have substantially advanced the understanding of the mechanisms underlying female orgasm. Wise et al. (2017) conducted functional magnetic resonance imaging (fMRI) during self- and partner-induced clitoral stimulation and orgasm, identifying extensive cortical, subcortical, and brainstem regions that reach peak activation at orgasm. The key structures included the nucleus accumbens (reward processing), insula (interoceptive awareness), anterior cingulate cortex (emotional processing), orbitofrontal cortex (decision-making and pleasure), paracentral lobule (sensorimotor integration), cerebellum, hippocampus, amygdala, hypothalamus, ventral tegmental area, and dorsal raphe (Wise et al, 2017).

The hypothalamus shows particularly robust activation during orgasm, consistent with its role in oxytocin release and autonomic regulation. Oxytocin, released during orgasm, produces pleasurable sensations and uterine contractions characteristic of the orgasmic response (Komisaruk et al, 2006). The dorsal raphe nucleus, a primary source of serotonergic projections, shows increased activity, potentially explaining the mood-elevating and analgesic effects often reported during orgasm.

Georgiadis et al. (2009) have contributed important findings regarding the differential patterns of sexual response activation and deactivation. In partner-stimulated conditions, certain frontal and temporal regions, particularly the left orbitofrontal cortex, show decreased activity during orgasm (Georgiadis et al, 2009). This deactivation has been interpreted as reflecting a "letting go" of cognitive control, which is potentially necessary for the altered state of consciousness characteristic of orgasm. The implications for FOD treatment are significant: interventions that facilitate the deactivation of excessive cognitive control mechanism deactivation may enhance orgasmic capacity.

Dynamics of the Autonomic Nervous System

The complex interplay between the sympathetic and parasympathetic divisions of the autonomic nervous system is involved in the female sexual response. Genital arousal is primarily mediated through the parasympathetic pathways (pelvic splanchnic nerves, S2–S4), resulting in vasocongestion and lubrication. The transition from arousal plateau to orgasm involves sympathetic activation, with orgasm itself representing a coordinated sympathetic discharge that produces pelvic musculature rhythmic contractions. Disruptions at any point in this sequence can impair the orgasmic response.

The vagus nerve provides an additional pathway for genital-brain connectivity that bypasses the spinal cord. Komisaruk and Whipple demonstrated that women with complete spinal cord injuries can experience orgasm through cervical stimulation, mediated by vagal afferents (Whipple et al, 1996). This finding has implications for understanding orgasmic potential in women with neurological conditions and suggests that multiple neural pathways may contribute to orgasmic capacity.

Hormonal Factors

Hormonal influences on female orgasmic function remain an area of ongoing investigation, with evidence suggesting modest but clinically relevant effects. Estrogen maintains genital tissue integrity and vaginal lubrication, with estrogen deficiency (as occurs in menopause) associated with vulvovaginal atrophy that may indirectly impair the orgasmic response through dyspareunia and decreased sensation. Testosterone, though present in lower concentrations in women, appears to influence sexual desire and potentially arousal, with some evidence suggesting a role in orgasmic function as well.

Oxytocin and prolactin are released during orgasm and contribute to the subjective pleasure and satiation experience. Although definitive evidence is lacking, research has explored whether variations in oxytocin receptor sensitivity or release patterns might contribute to individual differences in orgasmic capacity. The complexity of hormonal influences underscores the need for comprehensive endocrine assessment in women presenting with acquired FOD, particularly in the context of menopause, hormonal contraception, or conditions affecting the hypothalamic-pituitary-gonadal axis.

Iatrogenic and Medical Factors

Medications represent a significant iatrogenic cause of acquired FOD, with selective serotonin reuptake inhibitors (SSRIs) and serotonin–norepinephrine reuptake inhibitors (SNRIs) be-

ing the most implicated classes. SSRI- and SNRI-induced sexual dysfunction affects 30%–70% of users and includes delayed or absent orgasm as a prominent feature (Clayton et al, 2014). This condition is often underrecognized in clinical practice and should be systematically screened when assessing acquired FOD. Other medications associated with orgasmic dysfunction include antipsychotics (particularly first-generation agents with strong dopamine blockade), certain antihypertensives, and opioid analgesics.

Medical conditions, including multiple sclerosis, Parkinson's disease, diabetic neuropathy, and spinal cord pathology, can impair orgasmic function. Pelvic surgery, including hysterectomy, may affect genital innervation, though evidence regarding effects on orgasm is mixed. Chronic health conditions, such as diabetes, cardiovascular disease, and chronic pain syndromes, are associated with increased rates of sexual dysfunction, likely through multiple mechanisms, including neurological, vascular, hormonal, and psychological pathways.

COGNITIVE-BEHAVIORAL ETIOLOGY

Cognitive Distraction and Spectating

The concept of spectating, introduced by Masters and Johnson (1970), remains central to cognitive-behavioral conceptualizations of sexual dysfunction. Spectating refers to the tendency to observe and evaluate oneself during sexual activity from a third-person perspective rather than remaining immersed in the subjective experience of sensations and pleasure. This self-monitoring process diverts attentional resources away from erotic cues and toward performance concerns, thereby disrupting the natural progression of sexual responses.

Barlow's (1986) influential model elaborated these mechanisms, proposing that performance-related cues activate anxiety in sexually dysfunctional individuals, which triggers a shift in attention from reward-motivated focus on arousal cues to threat-motivated focus on potential sexual failure. Cognitive distraction impairs the processing of erotic stimuli necessary for maintaining arousal and achieving orgasm. The resulting negative effect loop may perpetuate dysfunction by promoting avoidance of erotic cues and increased focus on nonerotic concerns.

Empirical research supports the harmful effects of cognitive distraction on female sexual arousal. Studies employing dichotic listening tasks or other distraction manipulations have demonstrated decreased genital and subjective arousal when women's attention is diverted from erotic stimuli (Dove & Wiederman, 2000; Elliott & O'Donohue, 1997). Meston (2006) found that experimentally induced self-focused attention decreased vaginal pulse amplitude in sexually functional women, supporting the clinical relevance of spectatoring as a mechanism of dysfunction (Meston, 2006).

Gender differences in cognitive distraction content have been identified, with women reporting more appearance-related distracting thoughts during sexual activity than men, who report more performance-focused concerns (Meana & Nunnink, 2006). Body image concerns represent a particularly salient form of cognitive distraction for women, with negative body esteem associated with spectatoring, reduced arousal, and orgasmic difficulties. Women dissatisfied with their bodies reported difficulty reaching orgasm, and these associations were mediated by appearance-related cognitive distraction during sex (Carvalheira et al, 2017).

Maladaptive Sexual Beliefs and Schemas

Cognitive content in the form of sexuality-related beliefs and schemas plays a significant role in orgasmic dysfunction. Nobre's cognitive-emotional model identifies several belief categories associated with sexual difficulties in women, including beliefs about sexual conservatism, female age-related beliefs, body image beliefs, motherhood primacy beliefs, and affection primacy beliefs (Nobre, 2017). These beliefs may create unrealistic expectations, induce guilt about sexual pleasure, or establish conditions that make orgasm difficult or impossible.

Specific beliefs relevant to orgasmic function include the expectation of orgasm through vaginal penetration alone, beliefs that women should be passive recipients rather than active agents in sexual encounters, and myths about spontaneous female arousal paralleling male patterns. When sexual experiences fail to match these expectations, women may interpret the discrepancy as evidence of dysfunction, triggering anxiety and self-monitoring that further impairs sexual response. According to Carvalho and Nobre (2023), automatic thoughts during sexual activity were among the strongest predictors of sexual desire and function in women. This finding supports the inclusion of cognitive assessment in the evaluation of FOD.

Deficits in Interoceptive Awareness

Recent studies have emphasized the significance of interoception (the perception of the body's internal signals) in women's sexual responses and orgasmic function. Lower interoceptive measure scores have been linked to orgasmic disorders, difficulties with arousal, and sexual dissatisfaction (Jąderek et al, 2023). The ability to pay attention to and interpret genital sensations during sexual activity appears to be necessary for the gradual increase of arousal toward the orgasmic threshold. Women with deficits in this ability may fail to notice or correctly interpret physiological arousal cues, resulting in reduced subjective arousal and impaired orgasmic response.

A study that compared women with and without anorgasmia found that women with anorgasmia showed deficits in awareness during dual sexual activity (Silverstein et al., 2011).

Higher levels of body awareness have been linked to greater consistency in sexual response, as measured by the alignment between subjective arousal and genital response (as indicated by vaginal lubrication). These findings provide a theoretical rationale for mindfulness-based interventions in the treatment of FOD, as discussed in subsequent sections.

Behavioral Patterns and History of Learning

Behavioral factors that contribute to FOD include limited sexual knowledge, insufficient arousal, and avoidance patterns that prevent exposure to situations that could lead to orgasm. Women who experience FOD throughout their lives may have received inadequate sexual education, developed barriers to exploring their genital areas, or never discovered their most effective forms of arousal. Additionally, individuals may be prevented from participating in sexual activities that could facilitate orgasm by behavioral barriers associated with shame, guilt, or religious prohibitions.

A learning history plays a crucial role because orgasm can be understood as a partially acquired response that develops through the experience of effective stimulation. Women who have never masturbated or explored their bodies may lack the self-knowledge necessary to communicate their preferences to partners or achieve orgasm. Conversely, women who have developed a specific pattern of stimulation necessary for orgasm (e.g., masturbating in a particular way) may have difficulty achieving orgasm with partners who stimulate them differently.

Relational factors also influence behavioral pathways. Women may struggle to express their stimulation needs due to communication barriers that may stem from shame or a lack of self-awareness about their needs. Technique, attentiveness, and willingness to provide prolonged stimulation can affect the likelihood of orgasm in partnered contexts. More broadly, relationship quality affects sexual functioning; conflict, anger, or emotional disconnection create contexts that are inhospitable to sexual satisfaction.

COGNITIVE-BEHAVIORAL TREATMENT APPROACHES

Directed Masturbation Programs

Directed masturbation (DM) is the treatment approach with the strongest empirical support for lifelong FOD. Developed by LoPiccolo and Lobitz (1972) and popularized by Barbach's (1974) group treatment model, DM consists of a gradual series of self-exploration and self-stimulation exercises designed to increase body awareness, reduce sexual anxiety, and build orgasm capacity through effective stimulation techniques.

A typical DM program involves stages such as visual and tactile body exploration, genital exploration, genital self-stimulation without performance pressure, identification of pleasurable techniques, extended self-stimulation with the goal of orgasm, introduction of fantasy or erotic materials if helpful, and inclusion of partner activities. Meston et al. (2004) concluded that masturbation training is an empirically valid and effective treatment for women with lifelong general anorgasmia (Meston et al, 2004).

Controlled studies show high success rates. Riley and Riley (1978) reported that 90% of women who underwent the DM program gained orgasmic capacity, compared with 53% of those treated with traditional sensate focus approaches, and that 85% of the DM group achieved orgasm at least 75% of the time during sexual intercourse. A comparative study found that both systematic desensitization and DM improved sexual self-acceptance and pleasure, but DM alone significantly increased sexual arousal and orgasm rates (Anderson, 1981). These findings establish DM as the first-line psychological intervention for primary anorgasmia.

The mechanisms underlying the effectiveness of DM likely include increased awareness of genitalia and interoceptive sensitivity, desensitization to negative associations with sexual organs and sexual pleasure, identification of effective arousal patterns, and increased sexual self-efficacy. Addressing the client's resistance to masturbation, which may stem from religious, cultural, or personal prohibitions, is an important therapeutic task. Cognitive interventions targeting beliefs that masturbation is immoral or abnormal may be necessary before moving on to behavioral exercises.

Sensate Focus Therapy

Developed by Masters and Johnson in 1970, sensate focus remains a fundamental element of sex therapy for various dysfunctions, including FOD. The technique involves a series of structured touch exercises that progress from nongenital to genital contact. Sexual intercourse and orgasm are prohibited during the initial stages of treatment. By explicitly removing performance expectations, couples can focus on sensory pleasure without experiencing anxiety about achieving specific outcomes.

The mechanism of sensate focus was initially conceptualized as anxiety reduction: the anxiety that inhibits arousal is reduced by removing performance pressure. However, subsequent research has questioned the importance of anxiety in FOD development. Meston et al. (2004) noted that controlled studies of sensate focus as the primary treatment for FOD did not demonstrate a significant improvement in the ability to orgasm and suggested that anxiety reduction techniques are only appropriate for women with anorgasmia when sexual anxiety is clearly present.

Sensate focus is primarily a technique to reduce spectator mode and increase awareness of pleasurable sensations in the present moment. When combined with mindfulness principles, such as noticing sensations without judgment and bringing attention back to the body when the mind wanders, sensate focus can function as a mindfulness practice. This reconceptualization suggests that sensate focus is most effective when integrated with cognitive and mindfulness components rather than as a standalone intervention.

Cognitive Restructuring and Psychoeducation

Cognitive restructuring in FOD treatment targets maladaptive beliefs about sexuality, unrealistic expectations regarding female orgasm, and automatic negative thoughts that accompany spectatoring. Common cognitive distortions include dichotomous thinking about sexual success and failure, catastrophizing about orgasmic difficulty implications, and mind-reading about partner judgments.

Psychoeducation is an important component that can correct myths and misconceptions by providing accurate information about female sexual anatomy and responses. Core educational content includes topics such as the normal variation in orgasm response patterns, why a high proportion of women require direct clitoral stimulation to achieve orgasm, the difference between subjective and physiological arousal, and how factors such as fatigue, stress, and relationship quality impact sexual response.

A randomized trial by Trudel et al. (2001) found that CBT resulted in significant improvements in sexual and marital satisfaction, perception of sexual arousal, and sexual self-esteem, as well as reductions in depression and anxiety, for women with hypoactive sexual desire, with 74% reporting improvement (Trudel et al, 2001). Although this study specifically focused on desire rather than orgasm, it demonstrates the efficacy of comprehensive CBT in treating female sexual dysfunction. A recent systematic review and meta-analysis confirmed that CBT effectively improves overall sexual function (SMD=1.34) and the orgasm domain (MD=1.75) compared with control conditions (Sharifipour et al, 2024).

Mindfulness-Based Interventions

Mindfulness-based approaches have demonstrated considerable promise in the treatment of sexual dysfunction in women, including FOD. Mindfulness, defined as the state of being aware of one's present experience without judgment, can address the various mechanisms involved in orgasmic dysfunction, such as cognitive distraction, spectatoring, and internal perception disorders. By encouraging continuous attention to bodily sensations without evaluation, mindfulness practice can enhance the awareness of internal perceptions necessary to recognize and generate arousal, leading to orgasm.

Brotto et al. conducted pioneering research on mindfulness-based interventions for women with sex difficulties. In a controlled trial, mindfulness-based group therapy significantly improved sexual desire, arousal, lubrication, satisfaction, and overall sexual functioning compared with a delayed treatment control group (Brotto et al, 2014). Increases in dispositional mindfulness and reductions in depressive symptoms were predictive of improvements in sexual desire orgasmic difficulties and sex-related distress also decreased, although these improvements occurred in both the treatment and control groups.

A randomized study specifically examining women who have difficulty achieving orgasm compared video-based mindfulness-based cognitive therapy (MBCT) with video-based traditional CBT (Adam et al, 2020). Both treatments significantly improved sexual functioning and reduced sexual distress. The study found that participants who underwent MBCT reported significantly greater subjective sexual arousal responses after sessions than those who underwent CBT, although both treatments were equally effective in reducing sexual distress. These findings suggest that mindfulness integration adds value to CBT, particularly for enhancing subjective arousal.

Systematic reviews of mindfulness-based therapy (MBT) for sexual dysfunction indicate that it leads to improvement in subjectively evaluated arousal and desire, sexual satisfaction, and reduction of fear linked with sexual activity (Jąderek & Lew-Starowicz, 2019). The research also showed improved consistency between subjectively perceived arousal and genital response—a finding consistent with mindfulness enhancing interoceptive accuracy. However, the evidence regarding MBT for pain-related sexual difficulties is less consistent. The online delivery of mindfulness interventions shows promising feasibility, potentially expanding access to evidence-based treatment (Stephenson et al, 2021).

BIOLOGICAL TREATMENT APPROACHES

Pharmacological treatment specifically for FOD remains limited, with no medications currently approved for this indication by regulatory agencies. This stands in contrast to the extensive pharmacopeia available for male sexual dysfunction, reflecting both biological differences and historical disparities in female sexuality research. Nevertheless, several pharmacological approaches have been investigated or used off-label. These pharmacological approaches are considered adjunctive and typically target comorbid conditions (e.g., depression, hypoactive sexual desire disorder) or iatrogenic causes (e.g., SSRI-induced dysfunction) rather than serving as primary standalone treatments for FOD.

Bupropion, a norepinephrine–dopamine reuptake inhibitor, has shown some promise for the treatment of female sexual

dysfunction. Its dopaminergic mechanism contrasts with serotonergic antidepressants that often impair sexual function. Case series and some controlled data suggest that bupropion may improve libido and possibly orgasm, particularly in women with SSRI-induced sexual dysfunction (Clayton et al, 2014). It may be considered when orgasmic dysfunction coexists with depression requiring pharmacotherapy.

Testosterone replacement therapy (TRT) is an effective treatment option for postmenopausal women with hypoactive sexual desire disorder (HSDD) because testosterone is vital for sexual function and health. However, data on its effectiveness in premenopausal women with HSDD are still limited. Further research on the long-term effects of TRT on women of all ages is needed (Uloko et al, 2022). The effects on orgasm are less clear. When used in conjunction with estrogen in postmenopausal women, transdermal testosterone has shown benefits for desire and may indirectly improve orgasmic function by enhancing arousal (Davis et al, 2008). An international panel of organizations, including the North American Menopause Society, the International Menopause Society, the Endocrine Society, the European Menopause and Andropause Society, and the International Society for Sexual Medicine, concluded that the only evidence-based indication for testosterone therapy in women is the treatment of HSDD, and that current data support its moderate therapeutic efficacy. However, as there are currently no products approved by national health authorities for women, male formulations may be cautiously used at female doses, with blood testosterone concentrations being regularly monitored (Davis et al, 2019).

Phosphodiesterase type 5 (PDE5) inhibitors, such as sildenafil, have shown inconsistent results in women, despite being highly effective for male erectile dysfunction (Thurman et al, 2024). The mechanism—enhancing genital blood flow—theoretically should improve arousal, but controlled trials have not demonstrated reliable improvement in desire or orgasm in premenopausal women without underlying vascular pathology. Some benefits may exist for postmenopausal women or those with specific arousal difficulties.

FDA-approved Eros Clitoral Therapy Device represents a nonpharmacological biological intervention. This vacuum device increases clitoral blood flow and engorgement, potentially enhancing sensation and arousal. Improvements in orgasm, sensation, and satisfaction with use have been reported (Billups et al, 2001). This may be particularly relevant for women with decreased genital sensation, including those with diabetes or neurological conditions.

Strategies for iatrogenic FOD related to medications include dose reduction, switching to agents with more favorable sexual side effect profiles, or adding adjunctive treatments. Options for SSRI-induced anorgasmia include reducing the dose if clinically feasible, switching to bupropion or mirtazapine, or adding bupropion to the SSRI regimen. Drug holidays (skipping doses before anticipated sexual activity) have limited evidence and may compromise psychiatric stability.

INTEGRATED BIOPSYCHOSOCIAL TREATMENT MODEL

The multifactorial etiology of FOD necessitates comprehensive assessment and individualized treatment planning that addresses relevant biological, psychological, and interpersonal factors. A thorough evaluation should identify predisposing factors (developmental history, trauma, and medical vulnerabilities), precipitating factors (relationship changes, medical illness, medication initiation, and life stressors), and maintaining factors (cognitive distortions, avoidance behaviors, and ongoing relational conflict). This formulation guides the selection and sequencing of treatments.

For women with lifelong, generalized FOD without prominent relationship distress or psychopathology, based on the evidence reviewed, DM represents the first-line intervention. This may be delivered individually, in a group format, or through bibliotherapy with texts such as becoming orgasmic (Heiman & LoPiccolo, 1988). Progress is monitored, and barriers are explored and addressed if initial attempts at orgasm through masturbation are unsuccessful, potentially including cognitive work on prohibitions against self-pleasure.

When cognitive factors, such as spectatoring, performance anxiety, and maladaptive beliefs, are prominent, cognitive restructuring is integrated with behavioral interventions. Psychoeducation provides a foundation by normalizing variation in female sexual responses and correcting myths. During sexual activity, specific beliefs are identified through thought records and challenged using standard CBT techniques. Behavioral experiments test predictions (e.g., that not having an orgasm will be catastrophic) to generate disconfirming evidence.

Mindfulness components can be integrated throughout treatment to enhance interoceptive awareness and reduce spectatoring. Formal mindfulness practice establishes attentional skills, whereas informal practice involves sensate focus during sexual activity. The focus is on noticing sensations as they are, without evaluation or attempts to make them different. When the mind wanders to performance concerns or other distractions, the attention is gently returned to bodily sensation.

For women with situational FOD or significant relational factors, partner involvement is important. Couples-based sensate focus exercises improve communication and address relational dynamics interfering with sexual satisfaction. Partners are

educated about the female sexual response and the specific preferences and needs of the woman. When relationship distress is severe, couples therapy addressing broader relationship issues may be necessary before focusing on sexual concerns.

Clinical algorithm (practical summary):

Step 1: Comprehensive assessment of biological, psychological, and relational factors.

Step 2: First-line treatment for lifelong generalized FOD–DM.

Step 3: CBT components (cognitive restructuring, psychoeducation, and mindfulness) are added based on maintaining factors.

Step 4: Address iatrogenic and medical contributors (especially SSRIs/SNRIs and endocrine issues).

Medical evaluation and management should be performed in parallel with psychological intervention when indicated. This includes review of medications for potential sexual side effects, assessment and treatment of contributing medical conditions, and hormonal evaluation for postmenopausal women or those with endocrine symptoms. Collaboration between mental health and medical providers optimizes comprehensive care.

DISCUSSION

This narrative review synthesized current knowledge regarding the biological and cognitive-behavioral etiology of FOD and evaluated the evidence base for treatment approaches. Several conclusions emerge with implications for clinical practice and future research.

First, neuroimaging research has substantially advanced understanding of the brain mechanisms underlying female orgasm, revealing extensive activation across reward, interoceptive, emotional, and autonomic regulatory systems. These findings have translational potential—for example, the observation that cognitive control regions are deactivated during orgasm suggests that interventions facilitating reduced cognitive monitoring may enhance orgasmic capacity. The prominent role of interoceptive cortices supports the relevance of mindfulness-based approaches that train attention to bodily sensation.

Second, cognitive-behavioral mechanisms, particularly spectatoring and cognitive distraction, have robust empirical support as factors that maintain FOD. The tendency to monitor and evaluate oneself during sexual activity diverts attention from the erotic cues necessary to build and sustain arousal. Women are particularly susceptible to appearance-related cognitive distraction, which links body image concerns to orgasmic difficulties. Through attention retraining and cognitive restructuring, cognitive-behavioral interventions directly target these maintaining factors.

Third, among psychological treatments, DM demonstrates the strongest evidence for lifelong FOD, with success rates of 80–90% for achieving orgasm through self-stimulation. CBT more broadly produces significant improvements in sexual function across multiple domains. The integration of mindfulness components appears to add value, particularly for enhancing subjective arousal and reducing spectatoring, although more research directly comparing integrated versus non-integrated approaches is needed.

Several limitations of the current evidence base warrant acknowledgment. Many treatment studies have methodological limitations, including small sample sizes, inadequate control conditions, heterogeneous populations, and variable outcome measures. The field would benefit from larger, well-controlled trials with standardized assessments and longer follow-up. Research on predictors of treatment response is limited, hampering the ability to match patients to optimal treatments. The cultural adaptation of interventions requires attention, as most research has been conducted in Western contexts with limited attention to diverse populations.

Future research directions include the investigation of neurobiological predictors and correlates of treatment response, development of personalized medicine approaches matching treatments to patient characteristics, evaluation of technology-assisted and online delivery formats to improve access, and examination of long-term maintenance of treatment gains. Mechanisms research could clarify the active ingredients of complex interventions, potentially allowing more efficient targeted approaches. Preliminary cognitive restructuring addressing guilt or prohibition may be required before behavioral intervention, especially in cultures where masturbation is taboo.

CONCLUSION

FOD is a prevalent condition with a multifactorial etiology encompassing biological vulnerabilities and cognitive-behavioral factors. Comprehensive assessment identifies predisposing, precipitating, and maintaining factors to guide the selection of individualized treatment. DM provides the strongest evidence base for lifelong FOD, whereas cognitive-behavioral approaches targeting spectatoring, maladaptive beliefs, and behavioral avoidance address common maintaining factors. Integration of mindfulness techniques shows promise for enhancing interoceptive awareness and reducing cognitive interference. A biopsychosocial framework that integrates biological and psychological interventions offers the most comprehensive approach to this common clinical challenge. Clinicians treating FOD can be cautiously optimistic that effective interventions exist, while recognizing the need for continued research to optimize outcomes for diverse patient populations.

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