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REVIEW

Psychological and interpersonal dimensions of sexual function and dysfunction in women: An update

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ABBREVIATIONS

CBT, cognitive behavioural therapy;
ED, erectile dysfunction;
HSDD, hypoactive sexual desire disorder;
FSAD, female sexual arousal disorder

Abstract ***Introduction:*** We reviewed the psychological and interpersonal dimensions of female sexual function and dysfunction.

Methods: We identified articles published in 1970–2013 using the keywords 'female sexual dysfunction', 'sexual desire', 'sexual arousal', 'female orgasmic disorder', 'sex therapy', 'psychotherapy', 'behaviour therapy' and 'Internet therapy'. Over 200 articles were reviewed (Level of evidence 2b).

Results and conclusions: We identified the major psychological variables affecting female sexual function. The outcomes of psychological treatment interventions are reported. A collaboration between healthcare practitioners from different disciplines is necessary in the evaluation, treatment and education of female patients with sexual dysfunction. The assessment of female and couples' sexual dysfunction should ideally include an enquiry about the predisposing, precipitating, maintaining and contextual factors.

Introduction

This article is an update of a previous chapter and article on the psychological and interpersonal dimensions of sexual function and dysfunction [1,2]. Using a biopsychosocial framework we examined the predisposing, precipitating, maintaining and contextual factors involved in female sexual function and dysfunction. In

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addition, we highlight significant interpersonal and psychological dimensions that contribute to sexual health. Current psychological treatment protocols are reviewed and a treatment model, comprised of an integrative biopsychosocial model that fully acknowledges the dynamic interplay between the mind and body is recommended.

Factors in the aetiological background of sexual dysfunction

According to Hawton and Catalan [3], sexual dysfunction is typically influenced by a variety of predisposing, precipitating, maintaining and contextual factors. As shown in Table 1, predisposing factors include both constitutional and previous negative life experiences. Later in life, for some women, these predisposing factors might be associated with sexual dysfunction and/or mental health problems. Other individuals appear to be more resilient and less susceptible to these negative stressors, and might be symptom-free in adult life.

Precipitating factors are those that trigger sexual problems, but it is not possible to predict which factors and/or circumstances will impair sexual functioning or sexual desire in a given woman. However, damaged self-confidence by repetitive or problematic sexual experiences, such as sexual violence, conflict in divorce, a disabling accident, or unsatisfying sexual experiences can generate sexual dysfunction, even in reasonably resilient women.

Maintaining factors include issues such as discord in a relationship, body-image concerns and damaged self-esteem or confidence. Maintaining factors might prolong and worsen problems, regardless of the original predisposing or precipitating conditions. Maintaining factors also include contextual factors that can interfere with or interrupt sexual activity, such as environmental constraints (e.g. lack of privacy, working different shifts, trying to conceive) or anger/resentment towards a partner. Contextual issues are usually transient, but can become chronic and have a significant effect on women's sexual functioning (Table 1).

Women and couples are affected by predisposing, precipitating, maintaining and contextual factors that interfere with sustaining an active and satisfying sexual

Table 1 An aetiological model for understanding sexual function and dysfunction.

Predisposing factors	Detail
Constitutional *(partial list only)*	
	Anatomical deformities, e.g. intersex conditions
	Hormonal irregularities
	Temperament; shyness vs. impulsivity; inhibition/excitation
	Physical resiliency
	Personality traits, e.g., obsessive-compulsive vs. histrionic
Developmental *(partial list only)*	
	Problematical attachment/experiences with parents or parental surrogates
	Exposure to physical, sexual coercion, violence
	Surgical intervention/medical illness
	Event based or process-based trauma
	Early sexual experiences, e.g. first intercourse
	Sexual abuse
	Religious/cultural messages, expectations, constraints
Precipitating *(partial list only)*	
	Life-stage stressors such as divorce, separation, loss of partner, infidelity, menopausal complaints
	Infertility or postpartum experiences
	Humiliating sexual encounters/experiences
	Depression/anxiety
	Relationship discord
	Substance abuse
Maintaining *(partial list only)*	
	Ongoing interpersonal conflict
	Stress-emotional, occupational, personal
	Acute/chronic illness/health problems
	Medications, substance abuse
	Loss of sexual self-confidence, performance anxiety
	Body image concerns
Contextual *(partial list only)*	
	Present day stresses and demands; financial burdens, unemployment, care-taking of parents
	Children or partner, fatigue from child-rearing
	Environmental constraints; lack of privacy, time, partners working different shifts
	Repeated unsuccessful attempts to conceive children, artificially assisted attempts to conceive

life. A woman's vulnerability to later sexual dysfunction is determined by the ratio of risk to protective factors, as well as her personal resilience. In general, a person's vulnerability to sexual dysfunction is increased by having more risk factors lasting for longer, and accompanied by greater coerciveness than a single negative or traumatic episode [4].

Interpersonal dimensions and sexual functioning

It often appears that sexual issues result from problematic or unsatisfactory relationships. However, it is often difficult to discern causality, i.e. which came first. It is also difficult to examine the relationship between sexual problems and relationships, because couples who seek treatment do so at different stages of satisfaction with the relationship, complicated by different definitions about both a healthy sexual life and satisfaction with the relationship. However, the existing research suggests that treating relationship and sexual issues concurrently yields a better long-term outcome than considering them as separate issues [5,6].

It would be remiss not to consider ideas about love and intimacy in a discussion about relationships and sexual functioning [7]. These ideas vary tremendously in their importance culturally, but most individuals in Western countries adhere to the importance of love and intimacy in both sexual and relationship satisfaction. Love is often the basis for relationships and an important component for maintaining the relationship and for sexual satisfaction.

Affective disorders and sexual functioning

The impact that affective disorders such as anxiety and depression have on women's sexual functioning is important to consider, as both affective and sexual disorders are highly prevalent, tend to be comorbid, and can share a common cause [8,9]. Pioneers in sex therapy, such as Masters and Johnson [10] and Kaplan [11], realised the significant role that anxiety played in early psychodynamic formulations of sexual dysfunction, which later became the foundation for the aetiological concepts of their respective sex-therapy interventions. Kaplan believed that sexually related anxiety resulted in many negative influences on sexual function.

The research is divergent on whether or not anxiety functions as a trait or stable factor of personality, or whether the anxiety is relegated to concerns about sexual functioning. Interestingly, findings in laboratory studies that involved the induction of anxiety in men suggest that anxiety either facilitates or has no effect upon sexually functional subjects, with more mixed findings for sexually dysfunctional subjects [12]. According to Barlow's theoretical model [13], differences in cognitive interference, such as selective attention and distractibility, result in differences in sexual responding. This is also most probably true in women.

Cognitive activities that serve as distractions for sexually dysfunctional women include demands on performance, 'spectatoring' and a fear of intimacy, and can impede the woman from attending to stimuli in a sexual context. Eroticism facilitates sexuality; worry about achieving an orgasm is distinctly not erotic. It is suggested that the effect of anxiety on sexual performance in women is more negative than facilitatory [14].

As for the relationship between depression and sexual functioning, it is agreed that the relationship is bidirectional and often complicated by the well-known sexual side-effects of antidepressant medications [9,15]. Beck [16] found low sexual interest in 61% of severe depressives, compared with 27% of nondepressed controls.

Female sexual dysfunction and treatment

Female sexual complaints include dysfunction of desire, arousal, orgasm and genital pain [17]. Genital pain disorders will not be addressed here, as there is controversy about whether to consider them sexual dysfunctions or pain disorders [18]. The most prevalent female sexual dysfunction is hypoactive sexual desire disorder (HSDD), with 30–35% of women self-reporting this problem [19]. Typically, women with orgasmic difficulties tend to endorse more negative attitudes towards sexual activity and masturbation [20,21], and have been found to be less aware of the physiological signs of arousal and orgasm [22]. In addition, historically women's sexuality has been measured by assumptions made for men, which is problematic for the purposes of research, as well as diagnosis and treatment.

In an attempt to increase our understanding of women's sexuality, Carvalho and Nobre [23] assessed community women on their sexual beliefs, psychopathology, thoughts and emotions during sexual activity, as well as medical issues. These authors found that sexual desire was predicted best by automatic thoughts during sexual activity. This research is important, as it serves to support the approach for including cognitive assessments when treating sexual dysfunction.

Basson et al. [24] advocate a change in the conceptualisation of women's sexual function and dysfunction, along with a consideration of normal life changes that affect sexual interest and sexual response. Their article cautions against assigning a pathology to women because of contextual and life-style issues. They stress the importance of considering all contextual and interpersonal factors before making a diagnosis, and the inclusion of descriptors to aid in treatment recommendations.

There are few published outcome studies on the psychological treatment of female sexual arousal disorders (FSAD). There has been more recent attention in this area, partly because of the success of vasoactive agents

in the treatment of male erectile disorder, which were then tested unsuccessfully in women. Four subtypes of FSAD have been proposed, i.e. genital sexual arousal disorder, subjective sexual arousal disorder, combined genital and subjective arousal disorder, and a more recently conceptualised condition called persistent genital arousal disorder [25]. This condition is a very troubling problem for women, characterised by insistent feelings of genital vasocongestion in the absence of conscious desire, and unrelieved by orgasm.

In the imminent Diagnostic and Statistical Manual of Mental Disorders V [26], the dysfunctions of HSDD and FSAD will be combined into one disorder, termed female sexual interest/arousal disorder. Combining these two taxonomic categories into one remains highly controversial, both in terms of the validity of combining the two disorders and the effect of this combined dysfunction for future research and drug approval [27].

Psychological interventions for women with HSDD focus on enhancing communication between partners, increasing sexual skills, reducing performance anxiety and managing cognitive distortions that interfere with sexual functioning [24]. In one study [28] 44% of women noted an improvement within 10 treatment sessions, but the findings were limited, in that many of the women had several sexual dysfunctions and the study lacked a control group.

Comparing a group treated by cognitive behavioural therapy (CBT) to a control group for women with HSDD, Trudel et al. [29] found that 74% of women with low desire reported an improvement. Compared with the control group, CBT resulted in a significant improvement in the quality of sexual and marital life, sexual satisfaction, perception of sexual arousal, sexual self-esteem, and diminished depression and anxiety.

Witting et al. [30] investigated the association between female sexual dysfunction, distress and partner compatibility. The two main complaints of women were 'too little foreplay' (42%) and 'male partner is more interested in sex than you' (35%). The women who experienced distress as assessed by the Female Sexual Distress Scale or had a sexual dysfunction as determined by the Female Sexual Functioning Index (total score >26.5) reported more incompatibility with their partner than did functional women. Nevertheless, successful treatment can affect these important sexual variables while changing the identified outcome targets. Moreover, for many women, it is these behaviours that might constitute the most salient endpoints of treatment, as sexual performance or genital arousal without pleasure is an unsatisfactory compromise for most women.

To date, no pharmacological agent has received approval by the USA Food and Drug Administration for either the treatment of HSDD or FSAD. There are several promising agents in clinical trials and in future there might be drugs that are effective and safe for these conditions.

Directed masturbation or self-stimulation training appears to be the effective treatment for orgasmic problems [22]. Using this method, women become more aware of their arousal and pleasure, and can generalise them to sexual situations with a partner. Women with sexual dysfunction tend to be distressed and dissatisfied in their relationships; thus, combining couples and sexual therapy tends to result in more positive outcomes [31,32].

Studies on the outcome of sex therapy

There are several explanations for the paucity of research on sexual dysfunction. These studies are labour-intensive and not considered a priority by governmental granting agencies. Also, there is no incentive for pharmaceutical companies to fund treatments that are purely psychological. Last, Masters and Johnson's [10] original treatment programme was so successful that other workers have been disinclined from exploring other forms of treatment. Never before or since has such a large-scale study reported highly successful results after treatment and at a 5-year follow-up. Of the 792 women and men participants, the overall failure rate was only 15%. For several decades the field relied primarily on their treatment approach and few innovations were forthcoming [33]. Unfortunately, no other clinical study or centre has been able to replicate the impressive success reported by Masters and Johnson, either in the short- or long- term [1].

Also, and due to the complex nature of sexual dysfunction, it is difficult to design and implement research studies that can incorporate the multidimensional aetiology and interpersonal facets involved, while maintaining the high standards demanded by empirical research. A significant complication is the very subjective definitions and experiences of female sexuality and the importance of sexual life in women's overall quality of life. It is also an area that poses measurement challenges, in which healthy sexual functioning can be conceptualised in many different ways, resulting in many different outcome variables. Similarly, there is disagreement on what exactly constitutes a good outcome of treatment, thus further impeding research efforts.

Despite this divergence, Hawton [34] identified various factors that appear to be related to more positive outcomes with psychological treatment interventions, i.e. the motivation level of both partners, satisfaction within the relationship, and compliance with the treatment protocol. Four variables have been identified as associated with treatment withdrawal, i.e., a lower socio-economic status, the male partner's lower or lack of motivation for treatment, conflicted partner relationship, and poor progress by the third treatment session.

Overall, psychological interventions using 'sensate-focus' exercises, directed masturbation and CBT have been highly successful in treating primary orgasmic dysfunction, and somewhat less effective in treating coital anorgasmia. The treatment outcomes with desire and arousal disorders, and sexual pain complaints, are more variable, as these problems tend to occur together and various contextual factors can interfere with the outcome. However, several recent studies using a small psychoeducational-group treatment format, consisting of mindfulness and CBT, have been promising for women with sexual desire and arousal disorders [35]. However, treating the contextual and relationship issues that inevitably accompany these problems is crucial for long-term improvement.

Integrated treatment for sexual dysfunction

Integrated or combined treatment is a term used to describe concurrent or stepwise combinations of psychological and medical interventions [36,37]. Too often the medical treatments are directed narrowly at a specific sexual dysfunction and fail to address the larger biopsychosocial issues. As mentioned above, there are no approved pharmacological treatments for desire, arousal or orgasmic problems. It is also likely that the robust pharmacological responses of men with erectile dysfunction (ED) to phosphodiesterase-5 inhibitors [38] will not be apparent for women. The efficacy of pharmacological intervention for women will probably be more modest than was apparent for men. Thus it is important to consider the psychological and interpersonal variables, e.g., performance anxiety and depression, partner variables such as poor mental or physical health and partner disinterest, interpersonal variables such as overall quality of the relationship, interpersonal sexual variables such as the interval of abstinence and sexual scripts, and contextual variables such as current life stressors. While medical therapies, especially for ED, are generally effective (50–90%), $\approx$ 60% of men fail to continue with treatment. Combining women's modest response to pharmacotherapy with the array of potential psychological, interpersonal and contextual issues provides more reasons to consider combined treatment for female sexual dysfunction [39].

Several studies have concluded that combined therapy is more effective than pharmacological therapy alone for men with ED and premature ejaculation [40–42]. While there are no data on combined treatment in women, it is likely that combining psychological and pharmacological treatment will also yield better results than pharmacotherapy alone.

Although there are several ethical and professional challenges to consider, the use of the Internet presents itself as an attractive medium for treating sexual dysfunction. It is easily accessibility, anonymous, practical, and can reduce the stigma and embarrassment when obtaining treatment for such a sensitive issue. It also removes the barrier of geographical isolation and the availability of a therapist during business hours. More research needs to be completed to inform on the widespread use of such therapies, while ensuring that the patient's privacy, consent, and professional concerns about licencing and liability are also addressed. Recent studies have shown the efficacy of Internet therapy for the treatment of female and male sexual dysfunction [43–45].

Conclusion and recommendations

To be effective, treatment for sexual dysfunction must address the biopsychosocial influences on the woman, the partner and the couple [46]. The therapist should attempt to understand all of the forces that contributed to the development and maintenance of the sexual and relationship problems even as they are providing treatment. This requires that the clinician takes the time to conduct a comprehensive biopsychosocial assessment, to identify the predisposing, precipitating, maintaining and contextual factors responsible for the problem.

The biopsychosocial model provides a compelling reason for scepticism that any single intervention is sufficient for most women or couples experiencing sexual dysfunction. This is especially true, as sexual behaviour most often occurs in a dyad, with two individuals bringing their unique histories, inhibitions and motivations to treatment. The goal of treatment is the restoration of sexual pleasure and a satisfying sexual function. The reality is that not all physicians and mental health professionals have the same ability to work with the biological, individual psychological, interpersonal and cultural contributions to a given dysfunction. Professionals must guard against simplistic thinking about the cause and treatment of any of these problems. In support of the more current research in this area of treatment, it is recommended that practitioners of different disciplines collaborate with each other, as each discipline has its unique perspective and contribution to the problem. As noted in the literature, neither psychotherapy alone nor medical intervention alone appears to provide long-lasting resolution of sexual problems for women.

Furthermore, it seems relevant to inquire, as part of the assessment, about the predisposing, precipitating, maintaining and contextual factors, as these influences greatly affect sexual functioning and provide an insight into some additional challenges the woman might be facing. Further research is needed in the area of affective disorders and sexual dysfunction to determine the relationship between them. Finally, more research is clearly needed to identify effective combined and/or integrated treatments that target female sexual dysfunction.

Conflict of interest

There is no conflict of interest.

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