REVIEW

Advances in the understanding and behavioural management of sexual dysfunctions

Telkar Srinivasa Sathyanarayana Rao[a] *and Abhinav Tandon*[b]

Purpose of review
Sexual medicine is a branch often neglected by professionals from different specialties associated with it. However, research in this field has picked up in recent years, owing to recently renewed interest in upholding the sexual rights of the population in general and lesbian, gay, bisexual and transgender groups in particular. The recently released *Diagnostic and statistical manual of mental disorders*, fifth edition, by the American Psychiatric Association in May 2013 has stirred up the supporters and critics (of *Diagnostic and statistical manual of mental disorders*, fifth edition) alike.

Recent findings
Diagnostic and statistical manual of mental disorders, fifth edition, has updated diagnostic criteria for some of the sexual disorders to improve understanding and diagnostic validity. Certain sexual dysfunctions have been regrouped and sexual response cycle-based classification has been partially withdrawn. Research in the area of behavioral management of sexual dysfunctions has given some novel concepts, particularly for women.

Summary
Although improvements in behavioral management (of sexual dysfunctions) and classification/diagnostic criteria in *Diagnostic and statistical manual of mental disorders*, fifth edition, is a step forward in the field of sexual medicine, we need to further improve our understanding in many of the lacunae, still bearing on the field of sexual medicine, lest we may fall at the first hurdle.

Keywords
advances in behavioral management of sexual dysfunctions, advances in sexual dysfunctions, *Diagnostic and statistical manual of mental disorders*, fifth edition, female and male sexual dysfunctions, sexuality

INTRODUCTION

A *PubMed* and *MEDLINE* database search for articles with the terms 'sexual dysfunction, advances/recent classification, DSM-5', 'cognitive behavior therapy, sexual disorders', 'behavioral management', 'psychological therapy, sex, sexuality', 'arousal disorders, orgasmic disorders, desire disorders', 'sex therapy', 'premature ejaculation, erectile dysfunction, behavioral management', 'paraphilias, paraphilic disorders, masturbation' was performed. Similar terms were used to search for articles in PsycINFO, journals.psychiatryonline, sciencedirect and journals.elsevier; articles published during the preceding and current year from 1 January 2013 to 15 April 2014 were taken.

ADVANCES IN UNDERSTANDING OF SEXUAL DYSFUNCTIONS

'Sexuality can be defined as a biologically, psychologically and socially determined quality of experience in human beings, which is formed by the unique development of a person's own life history [1].' Broadly, sexuality has three dimensions: the dimensions of desire, reproduction and attachment. The dimension of desire can predominate in autoeroticism. Media with erotic content and pornography utilize the desire dimension of sexuality to propagate their content [1]. Making a correct diagnosis has a significant impact on understanding the natural course of a disorder, its treatment aspects

[a]Department of Psychiatry, JSS Medical College and Hospital, JSS University, Mysore, Karnataka and [b]Department of Psychiatry, MLB Medical College, Jhansi, Uttar Pradesh, India

Correspondence to Dr (Professor) T.S. Sathyanarayana Rao, Editor, Indian Journal of Psychiatry and Department of Psychiatry, JSS University, JSS Medical College and Hospital, M.G. Road, Mysore, Karnataka 570004, India. Tel: +0821 2442840 (Direct), Mob: +91 984528 2399; e-mail: tssrao19@yahoo.com

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KEY POINTS

- Improvements in definition and diagnostic criteria of sexual dysfunctions in DSM-5 have led to improvements in understanding and validity of diagnosis.
- Moving over the human sexual response cycle in classification, merging of sexual interest and arousal disorders in women are some of the advances.
- Specific time duration for premature ejaculation, term 'gender dysphoria' replacing 'gender identity disorders', using the term 'paraphilic disorders' and differentiating it from 'paraphilias' are some of the positive changes in DSM-5.
- Psychological interventions improve sexual functioning particularly in women, but for male sexual dysfunctions further research is needed to verify the results.

and its effect on an individual [2]. Diagnostic criteria for sexual dysfunctions form the basis and the very foundation of sexual medicine. The validity of diagnosis of sexual dysfunctions has only recently been questioned and more operational definitions in tune with the clinical practice of sexual medicine have been considered. One of the most discussed, referenced and criticized literature on the topic, the *Diagnostic and statistical manual of mental disorders,* fifth edition (DSM-5) was released in May 2013 after detailed research and analysis, and has highlighted a number of recent advances and opened avenues for future research in the field of sexual medicine. DSM-5 has taken a step forward by partially abandoning the simple linear sexual response cycle and by making the diagnostic criteria more operationalized by giving separate classification for men and women [3▪▪,4,5]. To improve the validity of diagnosis, duration and severity criteria have been revised, except for substance/medication-induced sexual dysfunction. All sexual disorders in DSM-5 require a minimum duration of 6 months and more stringent severity criteria [6]. Future research is likely to improve the diagnostic criteria further [4].

DSM-5 has continued the tradition of using social norms to define 'healthy sexual practice'; although this is helpful in making a diagnosis in the cross-cultural context [7▪], it has been considered regressive and unscientific by some [8]. Sexuality-related attitudes and values are culture-specific; presentation of sexual dysfunction and expression of distress is influenced by cultural factors, although this would need further exploration [7▪].

In DSM-5, gender-specific sexual dysfunctions have been added, and sexual desire and arousal disorders for women have been merged into one, which is justified by citing recent research which shows that both disorders often coexist and can be elicited together in response to sexual cues [3▪▪]. However, whether there is enough evidence for merging sexual interest and arousal disorders is still being debated [4]. Dyspareunia and vaginismus have been merged into genito-pelvic pain/penetration disorder, as both mostly coexist. For premature ejaculation, the most common male sexual disorder [9], a time duration of 1 min has been specified; although the diagnosis also applies to nonvaginal sexual activities, time durations for these have not been specified [3▪▪]. In addition to the negative impact premature ejaculation has on the individual, it also negatively impacts the partner psychologically [10]. A new classificatory system for premature ejaculation had been proposed, to be included in DSM-5, although it was not included in the final publication. Four premature ejaculation categories proposed were as follows: lifelong premature ejaculation, acquired premature ejaculation, natural variable premature ejaculation and premature-like ejaculatory dysfunction [11]. Acquired premature ejaculation patients have higher rates of ejaculatory dysfunction, anxiety and depression compared with men with other types of premature ejaculations. The inverse relationship between intravaginal ejaculation latency time/the International Index of Erectile Function-5 and anxiety/depression (measured by Zung self-rating anxiety and depression scales) is strongest in men with premature-like ejaculatory dysfunction [12]. Microstructural white matter changes have been reported in patients with psychological erectile dysfunction. The changes in the splenium of the corpus callosum are directly proportional to symptom severity in erectile dysfunction [13].

Masturbation has been considered sinful by religious figures and institutions. However, it is an activity universally performed as well as condemned. Detailed questioning of masturbatory habits remains crucial for detailed assessment, diagnostic clarification and treatment of sexual dysfunctions in men [14].

Men are much more likely to suffer from physical ailments, such as erectile dysfunction whereas women commonly develop a psychological block to sexual enjoyment; therefore, both require a different approach to management. Women's most common sexual problem (low desire) is characterized as being more receptive, passive and complex, whereas in men, sexual desire is more spontaneous, initiating and constant. These findings led to the inclusion of 'responsive desire', as a new criterion in DSM-5 for diagnosing desire problems in women [15▪▪].

It should be noted that there are certain normative changes across the life span, and women in

long-term relationships may engage in sexual activity without any obvious feelings of sexual desire [3▪▪]. 'Interest' has been taken as a better descriptor, reflecting motivation and reward-seeking behavior, when compared with 'desire' which refers to the 'biological drive' component of sexual functioning; arousal (physiological genital response) precedes sexual interest, hence justifying the change of term to sexual interest/arousal disorders in women, which is supported by recent research. Women experience sex differently than men whereas the human sexual response cycle is on the basis of masculine version of sexuality. Hence, an 'alternative sexual response cycle' for women based on sexual receptivity has been suggested, although the idea has not been universally accepted [15▪▪]. Researchers have highlighted that the need to be sexually triggered, importance of non-sexual cues, physical arousal anteceding conscious interest in sex and relative lack of sexual fantasies in women, when compared with men, goes in favor of the need to have an alternative model of sexual response cycle in women. Women who do not develop sexual interest/arousal are rather uninterested in establishing intimacy with their partner through sex [15▪▪].

Emphasizing gender incongruence, a new diagnostic class of 'gender dysphoria' highlighting the affective component of distress, has been added in DSM-5, and subtyping based on sexual orientation has been removed reducing the stigma associated with the gay and lesbian population [8]. Under the section of 'gender dysphoria', the term 'gender' has taken precedence over the term 'sex', which emphasizes the public lived role as a boy/man or girl/woman instead of being identified as male or female from the biological indicators [3▪▪].

DSM-5 distinguishes between disorder (paraphilic disorder) and nonpathological sexual behavior, the paraphilias, emphasizing the fact that a paraphilia by itself does not require clinical intervention [3▪▪]. In DSM-5, the highly relevant clinical concept of 'hypersexuality' has still not been incorporated as a separate category [16]. The disorders of sexual preference manifest themselves on three levels: first, preference for partner of a particular gender, second, preference for partner of a particular age and third, preference for type of sexual activity with or without the partner [1].

Stress has been implicated as a cause for arousal disorders in women; women with high levels of stress have lower levels of genital arousal [17]. Negative cognitions of self-image related to vaginal penetration and negative beliefs about one's own body image and genital self-image increase pain and sexual distress and influences sexuality outcome in women [18]. Activation of early maladaptive cognitive schemas in response to negative sexual events is seen in women presenting with sexual dysfunction [19]. Maladaptive schemas also influence aggressive sexual behavior in individuals, particularly men; however, further research is needed in this regard [20]. Women with persistent genital arousal disorder have significantly more dysfunctional beliefs related to sexual activity, negative thoughts related to intimacy with the partner and negative affect during sexual activity [21]. Women who masturbate and/or have studied up to high school are more likely to achieve orgasm during sexual activity [22].

Sexual functioning in cancer survivors in general and prostate cancer survivors, in particular, goes down significantly. After prostate cancer treatment, they may face multiple sexual dysfunctions, including erectile dysfunction, decreased sexual desire, ejaculatory and orgasmic dysfunctions and intimacy issues [23].

Sex drive in men vs. women fully accounts for the difference in arousal to paraphilic stimuli. Sexual drive is usually more in men when compared with women; paraphilias are predominantly disorders of the man [24]. The classification of paraphilias in DSM-5 has been criticized on a number of issues: defining paraphilias by exclusion, culturally influenced criteria, avoiding the etiology and consent-related issues [25]. Pedophilia originates from the interplay of emotional, cognitive, sexual and social factors (such as media and social network [26]). Child sexual abuse produces a deeply negative impact on development, and it needs to be differentiated from pedophilia. Close to half of all child abusers fulfill the criteria for pedophilia [27]. Pedophilia is defined as recurrent, intense sexually arousing fantasies or behaviors involving sexual activity with prepubescent child/children (child less than 13 years; the individual involved is at least 16 years old and 5 years older than the child) associated with marked distress [3▪▪].

Sexual addiction is characterized by hypersexuality, dysregulation of sexual desire and sexual compulsivity; there is uncontrolled excessive urge for sexual acts with a frequency of 5–15 per day for more than 6 months in 15 years and above. Three behavioral domains are affected: motivation-reward, mood regulation and behavioral inhibition [28].

ADVANCES IN BEHAVIORAL MANAGEMENT OF SEXUAL DYSFUNCTIONS

Sex therapy, founded by Masters and Johnson in 1970, revolutionized the treatment of sexual

dysfunctions and shifted the focus from individual-based psychoanalytic and psychodynamic approaches to an educative, cognitive and behavioral approach, involving the couple and their interaction with the socio-cultural environment [29]. Annon in 1974 proposed a graded intervention usually referred to as the permission giving, limited information, specific suggestion, intensive sex therapy model. During the subsequent decades, individuals with more complex and chronic sexual problems have increased who require novel approaches to behavioral intervention in addition to the conventional sex therapy first described [30].

Pharmacotherapy as the sole treatment for sexual disorders has been criticized universally and more so by psychosocial therapists. Drug treatment alone cannot qualify for the treatment of sexual disorders by taking the biopsychosocial model into perspective. A holistic approach to management of sexual dysfunctions has been universally accepted. The biopsychosocial model of treatment implies to treatment of all three facets of the patient: biological, psychological and social. However, the current treatment algorithms based on this model are in their infancy, and innovative approaches and treatment strategies need to be formulated with future research [31], focusing particularly on behavioral treatment strategies. Implementation of an integrative approach in clinical practice requires improvement in training curricula, resource expansion and interdisciplinary collaboration [31].

Negative sexual experiences can initiate and sustain sexual disorders. In 'syndyastic sexual therapy', the focus is more on the attachment dimension of sexuality. This improves intimacy and bonding in the couple and improves sexual functioning. If the attachment dimension has been severely affected, as in some personality disorders, this therapy may not be useful [1].

Persistent genital arousal disorder is a common clinical condition in women and is responsive to cognitive behavior therapy, targeted at maladaptive sexual beliefs and negative emotions [21]. Sexual cognitive restructuring therapy has been shown to improve sexual functioning and sexual satisfaction [32]. There is good evidence to show that psychological interventions improve symptom severity and sexual satisfaction in women with sexual desire disorders and orgasmic disorders [33▪▪]. Further research is needed to ascertain positive effects of psychological interventions for other sexual dysfunctions, such as erectile dysfunction, premature ejaculation, vaginismus and mixed sexual dysfunctions. Treatment in group settings might be the treatment of choice, as it improves sexual satisfaction and is cost effective [33▪▪]. Online mindfulness-based cognitive behavior therapy is effective in women and improves sexual and emotional intimacy [34]. Mindfulness-based cognitive behavior therapy along with psycho-education, in a therapeutic group setting, in women with low sexual desire is helpful; here, patients may engage in self-observation, touch exercises and homework assignments. The technique is often used to make women accustomed to their physical sexual arousal and to bring the subjective and objective sexual states in unison. Being 'in the present' and bringing one's bodily experiences receptive to the psyche and in turn making the woman receptive to her initiating partner has been questioned as a technique, which may not be very productive for training of sexual desire [15▪▪].

Premature ejaculation is best treated by a combination of pharmacotherapy and cognitive, behavioral/sex therapy [35]. Psychotherapy includes psychosexual education and improves sexual communication in the couple. However, well controlled studies in this area are lacking; hence, there is lack of evidence in favor of psychotherapy for premature ejaculation. Common behavioral techniques include the 'start-stop technique', 'squeeze method' and pelvic floor rehabilitation exercises [36]. Handheld vibrating stimulation device, a variation of the classical start-stop technique, has been found to be useful [9]. In premature ejaculation, 'stambhanakaraka yoga' has shown improvement in multiple parameters, such as intravaginal ejaculation latency time, couple's satisfaction and performance anxiety [37]. All patients with premature ejaculation should get basic psycho-education. Graded behavior therapy combined with pharmacotherapy gives maximum benefit. Age-related penile hypoanesthesia requires education, reassurance and change in sexual techniques by the doctor to increase arousal and improve sexual functioning of the patient [38].

Postprostate cancer survivors benefit from psychological and behavioral management techniques to improve sexual functioning, and they are considered equally important to pharmacotherapy [23].

Sex reassignment surgery gives 75% client satisfaction, in 'gender dysphoria'. Therapy for paraphilic disorders should include exploring for early sexual experiences and any one or more of the following: medical treatment, psychotherapy and group or family therapy. Victim identification, covert conditioning, orgasmic reconditioning, masturbatory extinction and satiation and aversive therapies are some of the psychotherapy techniques that have been used with variable success [39].

As medical treatment is unsatisfactory, psychotherapy is used to modify the perverted personality in paraphilias. Here, the denial mechanism is such

that only sex drive is affected [40]. Psychotherapy is the treatment of choice for pedophilia [27]. For sexual addictions, the possible therapeutic actions include cognitive behavior therapy and exposure therapy [28].

CONCLUSION

Sexual medicine has been a neglected branch, although research in this field has picked up recently. DSM-5 has led to an improved understanding of sexual dysfunctions, but further research is warranted. Improvement in understanding, in recent years, has led to better behavioral management of selected female sexual dysfunctions. Behavioral management approaches require innovative research particularly in the area of paraphilic disorders and male sexual dysfunctions.

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Conflicts of interest

There are no conflicts of interest.
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- ■ of special interest
- ■■ of outstanding interest

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