Types of Sexual Dysfunction in Females : Current Nosological Status and Beyond

Ankit Goel, Prerna Kukreti, Dinesh Kataria
Department of Psychiatry & Drug Deaddiction Centre, Lady Hardinge Medical College, Connaught Place, New Delhi, India

ABSTRACT

Female sexual dysfunctions (FSD) are a heterogeneous group of disorders which are highly prevalent but less well understood and defined. FSD have been less well studied in contrast to the male sexual dysfunctions. The nosological classification varies with different classification systems. There are changes in the classification systems pertaining to FSD which may be a positive move but still these are amenable for further modifications to cater to the large population having the problem. Even the assessment instruments have been undergoing changes for better understanding of this varied group of disorders. Thus there is a growing need to come up with more suitable nosological and diagnostic classification from the currently used systems.

KEY WORDS : Sexual response cycle, DSM, ICD, Female sexual dysfunction

INTRODUCTION

Sexual dysfunctions are a heterogeneous group of disorders which includes "the various ways in which an individual is unable to participate in a sexual relationship as he or she would wish" [1]. Sexual functioning is interplay of many factors including biological, psychological and sociocultural factors. A diagnosis of sexual dysfunction is made after ruling out dysfunction due to nonsexual mental disorders, influence of any substance, due to medical condition or due to stressors like intimate partner violence, interpersonal relational problems or other such stressors.

EPIDEMIOLOGY

According to the data from National Health and Social Life Survey nearly a third of women have deceased sexual interest and a fourth have difficulty in experiencing orgasm [2]. A survey conducted in general population in USA, reveals sexual dysfunction more common in women than men [3]. In a study conducted in England nearly two-fifth of women had current sexual problem with lack of sexual desire, infrequent desire, and vaginal dryness being the most common [4]. A study involving 6700 participants in 9 Asian countries revealed 30% of women reported sexual problems [5]. In a study conducted in South India, two third women had female sexual dysfunction (FSD) with most common dysfunctions being difficulties in arousal, lubrication and orgasm [6]. Another Indian study found FSD in more than half the number of fertile females attending a tertiary care center [7].

SEXUAL RESPONSE CYCLE

The sexual response cycle in both sexes is often divided into five stages: desire, excitement, plateau, orgasm, and resolution [8].

Different patterns of orgasm in females as depicted in figure 1 [9].

Pattern 1 shows multiple orgasms.

Pattern 2 shows arousal that reaches the plateau level without going onto orgasm (resolution occurs very slowly).

Pattern 3 shows several brief drops in the excitement phase followed by an even more rapid resolution phase. .

Sexual response cycle	Physiological changes
1.Desire phase (consists of the motivational or appetitive aspects of sexual response. Includes sexual urges, fantasies, and wishes)	Has no specific physical changes
2.Exitement (refers to subjective feeling of sexual pleasure and accompanying physiological changes)	Vaginal lubrication begins Inner two-thirds of the vagina expands Color of vaginal wall becomes darker Outer lips of vagina flatten and move back from the vaginal opening Inner lips of the vagina thicken Clitoris enlarges Cervix and uterus move upward Nipples become erect Breast size increases modestly Sex flush appears (late and variable) Heart rate and blood pressure increase General neuromuscular tension increases

3. Plateau (refers to heightened state of excitement attained with continued stimulation)	Vaginal lubrication continues, but may wax and wane Orgasmic platform forms at outer third of the vagina Cervix and uterus elevate further Inner two-thirds of vagina lengthens and expands further Clitoris retracts beneath the clitoral hood Lips of the vagina become more swollen and change color Sex flush intensifies and spreads more widely Further increase in breast size; areola enlarges Heart rate and blood pressure increase further Breathing may become more shallow and rapid Voluntary contraction of rectal sphincter used by some females as a stimulative technique Further increase in neuromuscular tension Visual and auditory acuity are diminished
4. Orgasm (defined as the peak of sexual pleasure, with rhythmic contractions of the genital musculature)	Onset of powerful involuntary rhythmic contractions of orgasmic platform and uterus Sex flush, if present, reaches maximum color and spread Involuntary contractions of rectal sphincter Peak heart rates, blood pressure, and respiratory rates General loss of voluntary muscular control; may be cramp like spasms of muscle groups in the face, hands, and feet
5. Resolution (it refers to a general sense of relaxation and well-being is experienced. Then, there is a refractory period in males, which is usually absent in females)	Clitoris returns to normal position within 5-10 s after orgasm Orgasmic platform disappears Vaginal lips return to normal thickness, position, and color Vagina returns to resting size quickly; return to resting color may take as long as 10-15 min Uterus and cervix descend to their unstimulated positions Areola returns to normal size quickly; nipple erection disappears more slowly Rapid disappearance of sex flush Irregular neuromuscular tension may continue, as shown by involuntary twitches or contractions of isolated muscle groups Heart rate, respiratory rate, and blood pressure return to baseline (pre-excitation) levels General sense of relaxation is usually prominent Visual and auditory acuity return to usual levels

Table No. 1: Physical changes in the female during the sexual response cycle [9].

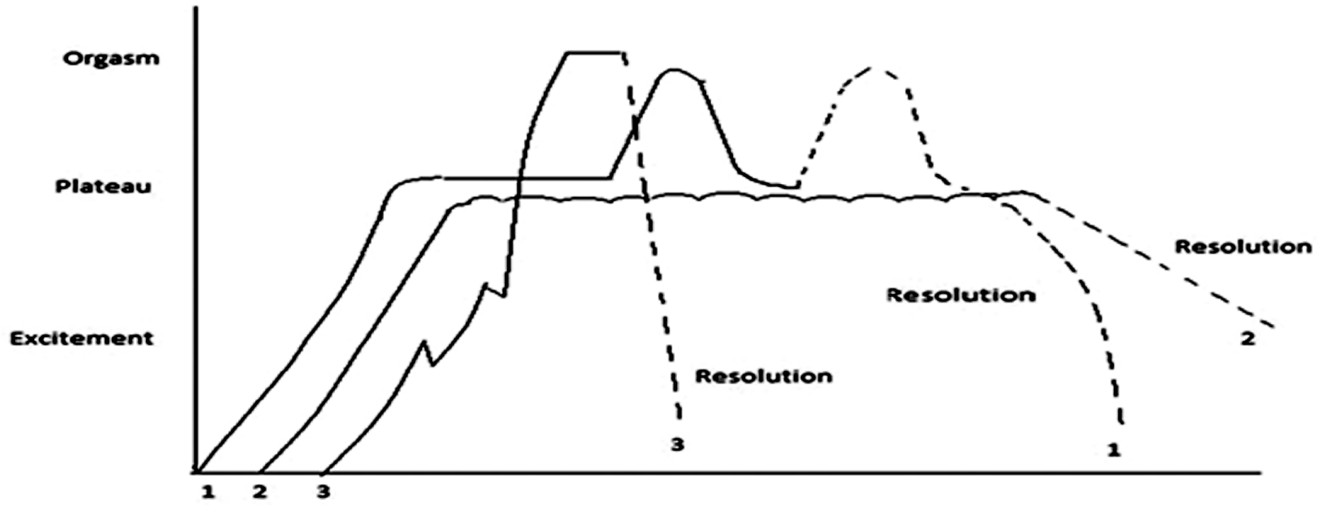

Figure No. 1 : Female sexual response cycle

DSM and ICD

The Diagnostic and Statistical Manual of Mental Disorders (DSM) criteria for female sexual dysfunction have been continuously evolving [10]. The changes in the criteria reflect the constant changes in the understanding of female sexual dysfunction and the current thinking of the psychiatrist at the time of the publication. For instance, the diagnostic criteria of female sexual interest in the DSM IV TR were based on the model of human sexual response [9, 11]. However, newer research puts question on the different phases of arousal as well the linear model doesn't explain the sexual behavior completely especially in females [12].

In DSM-5, changes were made for better understanding of the diagnosis. For instance, female disorders of desire and arousal were combined into a single diagnosis namely female sexual interest/arousal disorder. Even some of the diagnostic criteria were changed to increase precision. For example, nearly all diagnosis of sexual dysfunction in DSM-5 requires at least 6 months duration and frequency of 75%-100% [13]. A new exclusion criterion is added in DSM-5 which is "the disorder should not be better explained by a nonsexual mental disorder, a consequence of severe relationship distress (e.g., partner violence) or other significant stressors" [14].

A new severity scale is also added in which the disorder may be divided into mild, moderate or severe.

A new group called 'associated features' is added which is subdivided into five categories. These categories are described in DSM-5 as follow [14].

1) Partner factors (e.g., partner sexual problem; partner health status)

2) Relationship factors (e.g., poor communication, discrepancies in desire for sexual activity)

3) Individual vulnerability factors (e.g., poor body image; history of sexual or emotional abuse), psychiatric comorbidity (e.g., depression; anxiety), or stressors (e.g., job loss; bereavement)

4) Cultural or religious factors (e.g.,

inhibitions related to prohibitions against sexual activity or pleasure; attitudes toward sexuality)
5) Medical factors relevant to prognosis, course, or treatment

Merger of sexual disorders of desire and arousal in females in DSM-5 is based on observations that the division may be artificial [13]. Moreover, there is an increasing dismissal of the linear model of sexual arousal [15], also it is seen that disorders of desire and arousal occur concurrently in high frequency in both men and women. Thus the merger of the two may be the right step forward [16]. Another important change is the union of the diagnoses of dyspareunia and vaginismus into a single entity 'genito pelvic pain/penetration disorder'. This is based on the observation that it is extremely difficult to reliably differentiate the two disorders [17]. Deletion of sexual aversion disorder is due to the similarities it shares with phobias and other anxiety disorders [18]. The current ICD-10 classifies sexual dysfunctions under 'behavioural syndromes associated with physiological disturbances and physical factors'[1]. It also includes psychological and organic based sexual dysfunction diagnoses. The DSM-5 does not address the excessive sexual drive (nymphomania) listed in the ICD -10 or compulsive sexual behavior disorder (mentioned as a possibility in the ICD-11). DSM-5 continues to avoid the discussion of organic vs. non-organic.

ICD-11: The World Health Organization (WHO) is preparing the 11th version. Information about the classification of sexual dysfunctions in the ICD-11 is not much available. The available beta draft of the ICD-11 specifies a new category '05 - Conditions Related to Sexual Health' focusing on human sexuality [20, 21].

VARIOUS FEMALE SEXUAL DISORDERS

1. Female sexual interest/arousal disorder Lack of, or significantly reduced, sexual interest/arousal, as manifested by (the criteria below as described in DSM-5)

- Absent/reduced interest in sexual activity.
- Absent/reduced sexual/erotic thoughts or fantasies.
- No/reduced initiation of sexual activity, and typically unreceptive to a partner's attempts to initiate.
- Absent/reduced sexual excitement/pleasure during sexual activity in almost all or all sexual encounters.
- Absent/reduced sexual interest/arousal in response to any internal or external sexual/ erotic cues.
- Absent/reduced genital or non-genital sensations during sexual activity in almost all or all sexual encounters

2. Female orgasmic disorder

Presence of either of the following symptoms and experienced on almost all or all occasions of sexual activity:

- Marked delay in, marked infrequency of,

DSM-I 1952 (19)	DSM-II 1968 (19)	DSM-III 1980 (19)	DSM-III TR 1987 (19)
Disorders of psychogenic origin or without clearly defined physical cause or structural change in the brain • Psychophysiological autonomic and visceral disorders • Psychophysiological genito-urinary reaction e.g. 'some types of menstrual disturbance, dysuria and so forth, in which emotional factors play a causative role'	Psychophysiological disorders • Psychophysiological disorders (physical disorders of presumably psychogenic origin) • Psychophysiological disorders (physical disorders of presumably psychogenic origin)] • Psychophysiological genito-urinary disorders'- such as disturbances in menstruation and micturition, • dyspareunia, and impotence in which • emotional factors play a causative role'	Psychosexual Dysfunctions • Inhibited sexual desire • Inhibited sexual excitement • Inhibited female orgasm • Inhibited male orgasm • Exhibitionism Premature ejaculation • Functional dyspareunia • Functional vaginismus • Atypical psychosexual dysfunction	Sexual Dysfunctions • Hypoactive sexual desire disorder • Sexual aversion disorder • Female sexual arousal disorder • Male erectile disorder Inhibited female orgasm • Inhibited male orgasm Premature ejaculation • Dyspareunia • Vaginismus • Sexual dysfunction not otherwise specified

or absence of orgasm.
- Markedly reduced intensity of orgasmic sensations.

3.Genito-pelvic pain/penetration disorder

Persistent or recurrent difficulties with one (or more) of the following(the criteria below as described in DSM-5)
- Vaginal penetration during intercourse.
- Marked vulvo-vaginal or pelvic pain during vaginal intercourse or penetration attempts.
- Marked fear or anxiety about vulvovaginal or pelvic pain in anticipation of, during, or as a result of vaginal penetration.
- Marked tensing or tightening of the pelvic floor muscles during attempted vaginal penetration.

4. Excessive sexual drive

Both men and women may occasionally complain of excessive sexual drive as aproblem in its own right, usually during late teenage or early adulthood.

5. Substance/medication-induced sexual dysfunction

Evidence from the history, physical examination, or laboratory findings of both of the following:
- Clinically significant disturbance in sexual function developed during or soon after substance intoxication or withdrawal or after exposure to a medication.
- The involved substance/medication is capable of producing clinically significant disturbance in sexual function.

According to American College of Obstetricians and Gynecologists ACOG, there are four main categories of Female Sexual Disorder. These are

1. Sexual desire disorder
   Hypoactive sexual desire disorder
   Sexual aversion disorder
2. Sexual arousal disorder-Arousal disorder
3. Orgasmic disorder (persistent or recurrent delay in absence of orgasm)
   Primary orgasmic disorder
   Secondary orgasmic disorder
4. Pain disorder- Dyspareunia

CRITIQUE IN NOSOLOGICAL CLASSIFICATION OF FEMALE SEXUAL DYSFUNCTION

The American Psychiatric Association has played important role in the current classification of FSD in its Diagnostic and Statistical Manual of Mental Disorders (especially from DSM-III to DSM-5). But its limitations in FSD have been recognized by many as it misses the distinctions that characterize the presentation of FSD. This may be due to the fact that it arises from a system which is invented to characterize psychiatric

DSM-IV-TR Diagnoses (19)	Changes in DSM-5 (14)	ICD-10 (1)
• Female hypoactive desire disorder • Female arousal disorder	• Female sexual interest/arousal disorder	• F52.2 Failure of genital response • F52.0 Lack or loss of sexual desire
• Female orgasmic disorder	• Female orgasmic disorder	• F52.3 Orgasmic dysfunction
• Dyspareunia • Vaginismus	• Genito-pelvic pain/penetration disorder	• F52.6 Nonorganic dyspareunia • F52.5 Nonorganic vaginismus
• Substance/medication-induced sexual dysfunction	• Substance/medication-induced sexual dysfunction	
• Sexual dysfunction NOS	• Other specified sexual dysfunctions and Unspecified sexual dysfunction	• F52.8 Other sexual dysfunction, not caused by organic disorders or disease • F52.9 Unspecified sexual dysfunction, not caused by organic disorder or disease
• Sexual aversion disorder	•	• F52.1 Sexual aversion and lack of sexual enjoyment • 10 Sexual aversion • 11 Lack of sexual Enjoyment
• Sexual dysfunction due to a general medical condition		
		• F52.7 Excessive sexual drive

disorders [22]. Moreover, there is criticism of some of the changes in DSM-5, including the merging of disorders of desire and arousal as large number of low desire and arousal patients are being excluded due to this change [23].

In ideal situation, any nosological classification should be based on the basis of etiology, pathogenesis, and clinical phenomenology of the disorder. But this is rare in the current classificatory systems for FSD primarily because the diagnosis is based on history and clinical presentation of the patient. Also there is less importance given to the fact that one may have 2 or more FSD simultaneously which necessitates specifying primary and secondary status to the diagnosis.

The current classificatory systems are based either on the categorical or dimensional approaches, and both inherently possess certain features which cause hindrance especially for FSD. The categorical model considers each group as a discrete entity with clear boundaries between them, while the dimensional model is cumbersome which possess difficulties in using it in day to day clinical settings. There is a need to develop a system which shares characteristic of both categorical and dimensional models [24]. A third approach to nosology is the prototype matching which is a more natural way to classify complex presentations and an amalgamation of the two previous models [25].
There is a need to build a nomenclature for FSD that is truly valid, and accurately addresses the nature of reality.

ASSESSMENT OF FSD

Various tools have been developed to assess FSD, some of which includes:
1. The Golombok Rust Inventory of Sexual Satisfaction (GRISS; 1987), is a 28-item questionnaire which includes five domains specific to women (anorgasmia, vaginismus, female avoidance, female non sensuality, and female dissatisfaction) [26].

2. The Brief Index of Sexual Functioning for Women (BISF-W; 1994), is a 22-item questionnaire; provides composite scores and domain scores for thoughts/ desires, arousal, frequency of sexual activity, receptivity/initiation, pleasure/orgasm, relationship satisfaction, and problems affecting sexual function [27].

3. The Female Sexual Function Index (FSFI; 2000), is a 19-item questionnaire comprises six domains (desire, subjective arousal, lubrication, orgasm, satisfaction, and pain). It is cross-validated in women with mixed sexual dysfunctions, and cutoff scores have been developed to define dysfunction and non-dysfunction [28].

4. The Menopausal Sexual Interest Questionnaire (MSIQ; 2004), is a 10-item instrument that assesses three domains of sexual function (desire, responsiveness, and satisfaction). It is specifically developed for use in menopausal women [29].

5. The Profile of Female Sexual Function (PFSF; 2004), is a 37-item self-administered questionnaire (SAQ) that comprises seven domains: sexual desire, arousal, orgasm, sexual pleasure, sexual concerns, sexual responsiveness, and sexual self-image. The instrument was developed to assess sexual function and response to treatment in menopausal women is now validated for naturally menopausal women [30].

6. The Female Sexual Distress Scale (FSDS; 2002), is a 12-item assessment that provides a total distress score; a cutoff score of ≥15 is suggestive of personal distress [31].

7. The Structured Diagnostic Method (SDM; 2005), consists of four SAQs followed by a structured face-to-face interview. The first SAQ is the Life Satisfaction Checklist, with nine items that assess overall quality of life, including a question specific to sexual function; the next component is a subset of questions regarding sexual function from the Medical History Questionnaire; while the third and fourth components are the above-mentioned SFQ and FSDS [32].

CONCLUSION

Female sexual dysfunction (FSD) is a highly prevalent condition across the globe. There is a strong need to develop better classification system to cater to the need for better understanding of FSD. One way could be developing a system blended with characteristics of both categorical model and the dimensional model.

REFERENCES

1. World Health Organization: ICD-10: International Statistical Classification of Diseases and Related Health Problems. World Health Organization: Geneva 1992.
2. Laumann, E. O., Paik. A. and Rosen, R.C.: Sexual dysfunction in the United States:prevalence and predictors. JAMA, 10:281:537, 1999
3. Mezzich JE, Hernandez-Serrano R. Epidemiology and public health considerations. In: Psychiatry and Sexual Health – An Integrative Approach. Lanham: Jason Aronson; 2006. p. 33-43.
4. Dunn KM, Croft PR, Hackett GI. Sexual problems: A study of the prevalence and need for health care in the general population. FamPract 1998;15:519-24.
5. Nicolosi A, Glasser D, Kim S, Marumo K, Laumann E. Sexual behaviour and dysfunction and help-seeking patterns in adults aged 40-80 years in the urban population of Asian countries. BJU International. 2005;95(4):609-614.
6. Singh J, Tharyan P, Kekre N, Singh G, Gopalakrishnan G. Prevalence and risk factors for female sexual dysfunction in women attending a medical clinic in south India. Journal of Postgraduate Medicine.

2009;55(2):113.
7. Mishra V, Nanda S, Vyas B, Aggarwal R, Choudhary S, Saini S. Prevalence of female sexual dysfunction among Indian fertile females. Journal of Mid-life Health. 2016;7(4):154.
8. Weiner DN, Rosen RC. Sexual dysfuntion and disorders. In: Milion T, Blaney PH, Davis RD, editors. Oxford Textbook of Psychopathology. New York: Oxford University Press; 1999. p. 410-43.
9. Masters WH, Johnson VE, Kolodny RC. Patterns of sexual response. In: Heterosexuality. New York: Gramercy Books; 1994. p. 41-71.
10. Balon R. The DSM Criteria of Sexual Dysfunction: Need for a Change. Journal of Sex & Marital Therapy. 2008;34(3):186-197.
11. Kaplan H. The Classification of the Female Sexual Dysfunctions.Journal of Sex & Marital Therapy. 1974;1(2):124138.
12. Graham C, Sanders S, Milhausen R, McBride K. Turning On and Turning Off: A Focus Group Study of the Factors That Affect Women's Sexual Arousal. Archives of Sexual Behavior. 2004;33(6):527-538.
13. Graham C. The DSM Diagnostic Criteria for Female Sexual Arousal Disorder.Archives of Sexual Behavior. 2009;39(2):240-255.
14. Diagnostic and statistical manual of mental disorders (DSM-5). 5th ed. Arlington, VA: American Psychiatric Behavior. 2007;37(2):252-265.
16. Balon R. The DSM Criteria of Sexual Dysfunction: Need for a Change.
17. Binik Y. The DSM Diagnostic Criteria for Vaginismus.Archives of Sexual Behavior. 2009;39(2):278-291.
18. Brotto L. The DSM Diagnostic Criteria for Sexual Aversion Disorder.Archives of Sexual Behavior. 2009;39(2):271-277.
19. Angel K. The history of 'Female Sexual Dysfunction' as a mental disorder in the 20th century.Current Opinion in Psychiatry. 2010;23(6):536-541.
20. Luciano M. The ICD-11 beta draft is available online. World Psychiatry. 2015;14(3):375-376.
21. Reed GM, Drescher J, Krueger RB, et al. Disorders related to sexuality and gender identity in the ICD-11: revising the ICD-10 classification based on current scientific evidence, best clinical practices, and human rights considerations.World Psychiatry 2016;15:205-221.
22. Derogatis LR, Clayton AH, Rosen RC, et al. Should sexual desire and arousal disorders in women be merged? Arch Sex Behav 2011;40:217-219.
23. Sarin S, Amsel R, Binik Y.

Disentangling Desire and Arousal: A Classificatory Conundrum. Archives of Sexual Behavior. 2013;42(6):1079-1100.

24. Kruger RF, Watson D, Barlow DH. Toward a dimensionally based taxonomy of psychopathology. J AbnormPsychol 2005;114:491-493.

25. Westen D. Prototype diagnoses of psychiatric syndromes. World Psychiatry 2012;11:16-22.

26. Rust J, Golombok S. The GRISS: A psychometric instrument for the assessment of sexual dysfunction. Arch Sex Behav 1986;15:157–65.

27. Mazer NA, Leiblum SR, Rosen RC. The brief index of sexual functioning for women (BISF-W): A new scoring algorithm and comparison of normative and surgically menopausal populations. Menopause 2000;7:350–63.

28. Rosen R, Brown C, Heiman J, Leiblum S, Meston C, Shabsigh R, Ferguson D, D'Agostino R Jr. The Female Sexual Function Index (FSFI): A multidimensional self-report instrument for the assessment of female sexual function. J Sex Marital Ther 2000;26:191–208.

29. Rosen RC, Lobo RA, Block BA, Yang H-M, Zipfel LM. Menopausal Sexual Interest Questionnaire (MSIQ): A unidimensional scale for the assessment of sexual interest in postmenopausal women. J Sex Marital Ther 2004;30:1–16.

30. Derogatis L, Rust J, Golombok S, Bouchard C, Nachtigall L, Rodenberg C, Kuznicki J, McHorney CA. Validation of the profile of female sexual function (PFSF) in surgically and naturally menopausal women. J Sex Marital Ther 2004;30:25–36.

31. Derogatis LR, Rosen R, Leiblum S, Burnett A, Heiman J. The Female Sexual Distress Scale (FSDS): Initial validation of a standardized scale for assessment of sexually related personal distress in women. J Sex Marital Ther 2002;28:317–30.

32. Utian W, MacLean DB, Symonds T, Symons J, Somayaji V, Sisson M. A methodology study to validate a structured diagnostic method used to diagnose female sexual dysfunction and its subtypes in postmenopausal women. J Sex Marital Ther 2005;31:271–83.