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SEXUAL DYSFUNCTION IN FEMALES WITH ANXIETY DISORDER

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ABSTRACT Global studies suggest that female sexual dysfunction (FSD) has elevated occurrence and association with anxiety disorders and effects on mental health of women. It is known to have complex biopsychosocial etiopathogenesis. Anxiety is often a manifestation of societal, genetic, psychological, and ethical factors which come together to mess up sexual response. We have examined the association amid sexual dysfunction and anxiety disorders in this paper. Treatment associated sexual dysfunction is also discussed. Health care providers should educate patients in order to promote patient awareness and medication adherence.

KEYWORDS :

Introduction:

Worldwide, 41% of reproductive age women are affected by sexual dysfunction making it an important medical entity (1). It has a bio-psycho-social etiology i.e. Sexual dysfunctions can result from physiological factors, psychogenic factors, combined factors and stressors like interpersonal conflicts and relationship issues. They are common among psychiatric disorders and can be an effect of the disease itself (psychopathology) or the side effect of medications used for their treatment. Studies suggest high comorbidity between female sexual dysfunction and anxiety disorders (2,3).

Anxiety disorders are chronic, disabling conditions that share the common symptoms of disproportionate fear and anxiety and allied behavioral trouble and are associated with intense subjective distress and social impairment (4). Anxiety disorders have the highest prevalence amongst mental disorders around the world and have significant co-morbidities including sexual dysfunction.

In this review paper, we will discuss some general sexual dysfunctions seen in the company of anxiety disorders and dysfunctions associated with their pharmacological management. Directions for future research will then be discussed.

Sexual Response Cycle:

The sexual response cycle comprises desire, excitement, orgasm and resolution (both physiological and psychological). Desire is the mental state created by stimuli, external and internal, that induces a need or wants to participate in sexual activity. Arousal or excitement is a personal sentiment related to sexual contentment and associated bodily sensations which are indicated by erection of penis in men and lubrication of vagina in women. There is a separate stage known as Plateauing, which includes elevated arousal achieved by continuous stimulation accompanied by noticeable sexual tension which leads to orgasm. Orgasm, also called as climax is the peak of sexual satisfaction, which is associated by recurring contractions of the genital muscles in both the gender, leading to ejaculation in males. Resolution is the last stage sexual response cycle where a person experiences relaxation and well-being (5,6).

The current model of incentive-based sex response cycle attributes couple's emotional intimacy and expected pleasurable reward to be the main reasons for person's sexual activity (7).

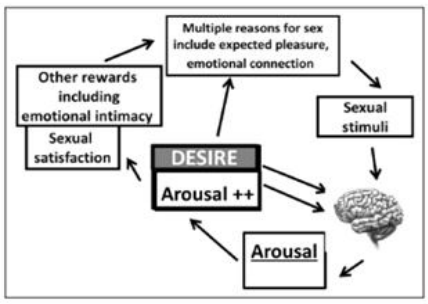

Figure 1. Incentive-based model of sexual response.

Female Sexual Disorders:

Female sexual dysfunction refers to a disorder of any of the stages of sexual response cycle and/or pain during intercourse, leading to personal distress and impacting the quality of life and personal relationships. (8)

Sexual dysfunctions as per American Psychiatric Association's Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5) are Female orgasmic disorder, Genito- pelvic pain/ penetration disorder, Female sexual interest/ arousal disorder, substance/medication-induced sexual dysfunction, other specified sexual dysfunction and unspecified sexual dysfunction. For making the diagnosis, symptoms need to be present for at least six months, cause distress and dysfunction (9).

There is a lack in trustworthy statistical studies on the epidemiology of sexual disorders in women, especially in nonwestern settings.

Recently, a British survey reported that only 3.6% females fulfills all the criterion for sexual dysfunction disorder even though 22.8% of females reported more than one sexual trouble including little interest in sex and arousal, problematic orgasm, or painful intercourse, (10).
An Indian study on the epidemiology of sexual disorders conducted by Rao et al. in the south Indian rural population on 1529 individuals reported the prevalence of sexual dysfunction in males was 21.15% and that in females was 14%. Decreased desire and arousal difficulties are the most common sexual dysfunctions amongst women while among men premature ejaculation is the prevalent sexual dysfunction followed closely by erectile dysfunction and hypoactive sexual desire.
Etiology:

Sexual response is a multifarious relation of psychological, physiological and interpersonal connections. The biopsychosocial model (Figure 1) for assessment of sexual dysfunction acknowledges that biological, psychological, interpersonal and sociocultural factors can affect sexual functioning.

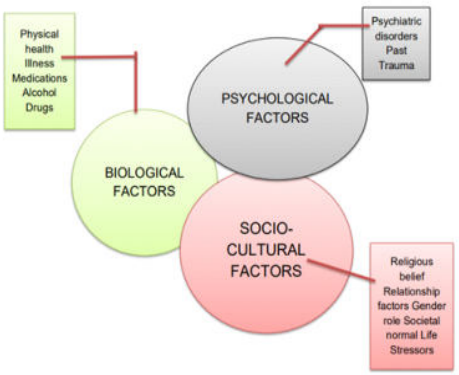

Figure 2: BIO- PSYCHO-SOCIAL MODEL OF SEXUAL DYSFUNCTION

Biological factors include general physical health, illnesses, medications, alcohol and drugs. Poor general health, diabetes, hypertension, cardiovascular diseases and metabolic syndrome all predispose both males and females to sexual dysfunction. Diabetes in women is associated with decreased vaginal lubrication and in men is associated with erectile dysfunction occurring in 35-90% of men with diabetes. Other biological factors associated with female sexual dysfunction include chronic diseases like hypothyroidism, hyperthyroidism, fibromyalgia and systemic sclerosis etc and that for male sexual dysfunction are cigarette smoking, obesity, COPD, chronic renal failure, spinal cord injury, polyneuropathy, multiple sclerosis and multiple system atrophy etc. Medications like Antidepressants (SSRIs & SNRIs) and Antipsychotics and substance use disorders like alcohol and opioid use disorders are also associated with sexual dysfunction.

Psychological factors include the presence of psychiatric disorders like mood disorders and past trauma, stress, depression, anxiety, schizophrenia and post-traumatic stress disorder etc. The socio-cultural factors include religious beliefs, relationship factors, gender role, societal norms stressors and life etc. A lower level of education, sexual abuse in childhood, less physical movement and unemployment is said to be connected with sexual disorders.

Presence of Anxiety disorders is an important cause of sexual dysfunction in females. Epidemiological data confirms that anxiety disorders may become a risk problem for sexual desire and arousal (11-15) along with a strong link between anxiety and orgasmic difficulties and sexual pain (16).

Anxiety disorders:
Anxiety is described as anticipation of a future threat and is not same as fear which is the emotional reaction to an imminent intimidation. The key difference between anxiety disorders and normal fear or anxiety is that the later is excessive or persists beyond developmentally normal periods. It is characterized by disperse, distasteful, indistinct sense of apprehension, accompanied by bodily symptoms like headache, restlessness, perspiration and tension in chest.

Anxiety disorders are one of the very commonly reported psychological disorders worldwide. The systematic reviews and meta-regressions show difference in the occurrence of anxiety disorders across the world and suggest the global current prevalence of anxiety disorders to be 7.3% (4.8-10.9%). As per National Co morbidity Study the lifetime prevalence being around 30 % in females.

As per DSM- 5, these disorders include specific phobias, social anxiety disorders, panic disorder, agoraphobia and GAD. NCS data reports that women suffer from anxiety disorders more in comparison to men (17). Throughout their lives, females are two times more likely to suffer from panic disorder (5% vs. 2%), agoraphobia (7% vs. 3.5%), PTSD (10.4% vs. 5%), or GAD (6.6% vs. 3.6%) (18,19). Social anxiety disorder (15.5% vs. 11.1%) and OCD (3.1% vs. 2%) are also much more prevailing in women, though differences in occurrence rates are not as significant(18,20).

Separation anxiety disorder, specific and social phobia have their average age of inception before 15 years, and agoraphobia, OCD, PTSD, panic disorder, and GAD have a later age of inception amid 21.1 and 34.9 years (21).

The risk factors predisposing to the occurrence of anxiety disorders are female sex, family history of anxiety disorder or major depressive disorder (MDD), childhood sexual abuse, substance use disorder (SUD), early parental loss and disturbed family environment. The neurobiological mechanisms underlying anxiety disorders consists of hyperactivity in limbic regions particularly amygdala. Other brain areas implicated in anxiety disorders are the hippocampus, cingulate gyrus, parahippocampal region and prefrontal cortex (22).

Major neurotransmitters implicated in pathogenesis of anxiety disorders are nor- epinephrine (NE), serotonin and gamma- amino butyric acid (GABA). Hypothalamic- pituitary adrenal (HPA) axis and CRH also play an important role in stress. A variety of bodily functions (e.g. growth, sexual activity, etc.) can be inhibited by CRH (23,24).

Anxiety plays a prime function in the pathogenesis and continuation of sexual disorders. This can be commonly witnessed in clinical setups. Anxiety is essentially the final general mechanism through which societal, emotional, genetic, and ethical factors contribute to sexual problems.

Sexual Dysfunction and Anxiety Disorders:
Considering the sexual response cycle, an inference can be drawn that sexual as well as nonsexual fears may act as distracters for women with anxiety disorders, by limiting their arousal and the occurrence of orgasm and probability of triggering desire (25).

Literature suggests that anxiety disorders predispose to low sexual desires and excitement, problems with orgasm and painful sex.

Sexual dysfunction in women is a prevalent community health hitch. In a meta- analysis by McCool et al (2016) which included 95 studies, comprising 215,740 participants, 40.9% of premenopausal women reported female sexual dysfunction (FSD). In this meta- analysis prevalence estimates of specific domains of FSD were variable with 28.2% participants reported hypoactive sexual desire disorder, 22.6% reported sexual arousal disorder, 20.6% reported difficulties with lubrication, 25.7% reported orgasmic disorder, and 20.8% reported sexual pain disorders.
64% of women with panic disorders were found to have sexual dysfunction (26). Females suffering from anxiety disorders have a high prevalence of sexual disorders too, which leads to neural, biological and cognitive intimidation of presentation anxiety (27).

The amplified sympathetic activity of sexual arousal which increases a woman's genital congestion also produces non-genital vibrations which could be looked upon as intimidating, when a person is anxious, creating trouble in sexual satisfaction (28).

"Anxious arousal" refers to bodily sensations coming from elevated sympathetic drive, along with shortness of breath, rise in body temperature, muscle strain and palpitations.

Trait anxiety is associated with anxiety sensitivity which is the fright of the responses made in anxiety and misapprehension of these responses, therefore a woman with high anxiety levels is unlikely to experience contentment from sexual activity (28).

Table 1: Studies on sexual dysfunction in anxiety disorders including only females

Authors & Year	Place of Study	Methodology	Results
Van Minnen & Kampman (2000) (29)	Nijmegen, The Netherlands	A controlled study to assess sexual performance was conducted on 27 females with panic disorder, OCD & 34 healthy females and their male partners. Functioning was assessed using the Questionnaire for screening Sexual Dysfunctions (QSD).	Sexual dysfunction was found in 76.4% OCD patients and 44.4% panic disorder patients 17 as compared to 17.6% in the control group. Hypoactive sexual desire disorder and Sexual aversion disorders were more common in OCD and PD patients in contrast to controls.
Aksaray et al (2001) (30)	Osmangazi, Turkey	The study compared the sexual functions of 23 OCD females with 26 GAD females. The sexual functioning was assessed using GRISS.	Sexual avoidance. Nonsensuality, and anorgasmia were more in females with OCD as compared to females with GAD.
Mercan et al (2006) (31)	Istanbul, Turkey	This study was done during 2003 and 2004 on 12 panic disorder patients the without depression, 28 panic disorders with comorbid depression patients and 13 controls. Sexual performance was evaluated using the Arizona Sexual Experiences Scale (ASEX).	Sexual dysfunction was significantly more common in panic disorder with comorbid depression group than in the panic disorder without depression and control groups. Low sexual desire and aversion were more common in panic disorder with comorbid depression group as compared to panic disorder without depression group.
Beaber & Werner (2009)	San Francisco, California	42 women in same sex relations and 78 women in heterosexual relations were evaluated to study the association between anxiety and sexual functioning in relation to female's sexual orientation. The Female sexual function index (FSFI) was used to assess the sexual functioning.	Anxiety was found to be negatively overall found to be correlated sexual with functioning. Orgasm, lubrication, and pain in heterosexual females but was related to sexual functioning in females.
Dettore et al (2013) (27)	Florence, Italy	130 women [100 without anxiety disorder and 30 with an anxiety disorder (GAD) or panic disorder)] evaluated for the outcome of state/trait anxiety, anxiety sensitivity on sexual functioning and the inclination to sexual inhibition/excitation by using the female sexual function index (FSFI) and Sexual inhibition scale/ Sexual excitation scale.	Women with an anxiety disorder (GAD/panic disorder) had poor sexual functioning in comparison to women without an anxiety disorder. Women with and an anxiety disorder reported decreased arousal, orgasmic difficulties, poor sexual satisfaction and a greater propensity toward sexual inhibition.
Berkol et al (2019) (32)	Istanbul, Turkey	68 female patients [24 with major depression and 44 with an anxiety disorder (7 OCD, 16 PD, 20 GAD, 1 SAD)] who were diagnosed using structured clinical interview for DSM-IV Axis I Disorders (SCID-I) were evaluated for sexual dysfunction by using Arizona Sexual Experiences Scale Female Form(ASEX).	Low sexual desire was the most common sexual dysfunction among both major depression (62.5%) and anxiety disorder (25%) groups. The sexual dysfunction was more frequent in major depression group patients (79.2%) than in the anxiety disorder group patients (43.2%).
Soltan et al (2020) (33)	Faiyum governorate, Egypt	450 women were assessed Pain Arabic pain using the validated version of FSFI and its correlation with anxiety and depression were assessed which diagnosed using SCID -1 pain. Arabic version. The severity of Depression was assessed using Beck depression inventory-Arabic version and Beck anxiety inventory Arabic version respectively.	Pain score were negatively correlated both with depression score (r-0.524, p<0.001) and the anxiety score (r-0.305, p< 0.001). Depression and anxiety were significant independent risk factors for more sexual pain.

Medication induced sexual dysfunction:

Treatment protocols for the management of anxiety disorders include psychological and/or pharmacological approaches. SSRIs, SNRIS and Pregabalin are first-line pharmacological agents for the treatment of anxiety disorders with some differentiation in various anxiety disorders.

The incidence of sexual dysfunction as a result of antidepressants is not easy to review, as the unpleasant sexual outcomes of depression and anxiety are at par with negative impacts of antidepressant medicines.

A meta-analysis in the year 2013, found that the frequency rates were ranging from 50 to 70 percent (34). Selective serotonin-reuptake inhibitors (SSRIs) are the type of antidepressants resulting in sexual dysfunction most of the time. Previous studies imply that some form of treatment-induced sexual dysfunction is seen in 30 to 60 percent of SSRI-treated patients. Bupropion and nefazodone seems less likely to root sexual disorders. Mirtazapine is also connected with a lower rate of such unpleasant outcomes. (35).

Sexual dysfunction is more likely with drugs which act by obstruction of the reuptake of serotonin at 5-HT receptors— especially 5HT2 subtypes (36).

Physicians need to observe their patients for medication- linked sexual unpleasant outcomes, because they may affect therapy and success in treatment.

Management principles of medication- induced sexual dysfunction:
Even though dose cutback can persist to advantage mood and alleviate negative impact related sex, around 10% of sex related negative impact may reduce in future (37), additional interventions are frequently required to cater to sexual dysfunction related to medication which includes switching to other psychotropic or adding psychotropic agents eg. Adding bupropion or aripiprazole to reverse SSRI induced dysfunction (38, 39).

Psychotherapies have been reported to beneficial in various studies. These therapies included behaviour therapy, Master and Johnson therapy, Jacobson progressive muscle relaxation, cognitive behavior therapy (CBT), exercise, and stimulation-based techniques (40).

Conclusion:

During management of anxiety disorders, a patient's sexual life should

be considered important, and vice versa. It has been observed that failure in investigating a person's psychological backdrop affects the recovery of a patient with a sexual dysfunction.

It is vital to further investigate to comprehend the intricate pathophysiology of the sexual disorders experienced by females with anxiety disorders. Its interplay of many factors, including input from medical interventions, anxiety, somatic sickness and the socio-cultural effects of psychological disorders.

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