FACULDADE DE MEDICINA
UNIVERSIDADE DO PORTO

MESTRADO INTEGRADO EM MEDICINA

2020/2021

Inês Margarida Pires Aleixo

Resposta Sexual Feminina: Modelos, Disfunções Sexuais e Abordagem Clínica/ *Female Sexual Response: Models, Sexual Dysfunctions and Clinical Approach*

Fevereiro, 2021

Inês Margarida Pires Aleixo

Resposta Sexual Feminina: Modelos, Disfunções Sexuais e Abordagem Clínica / *Female Sexual Response: Models, Sexual Dysfunctions and Clinical Approach*

Mestrado Integrado em Medicina

Área: Psiquiatria e Saúde Mental

Tipologia: Monografia

Trabalho efetuado sob a Orientação de:

Professor Doutor Manuel António Fernandez Esteves

Trabalho organizado de acordo com as normas da revista:

The Journal Of Sexual Medicine

FEVEREIRO, 2021

U.PORTO

FMUP FACULDADE DE MEDICINA UNIVERSIDADE DO PORTO

UC Dissertação/Projeto (6º Ano) - DECLARAÇÃO DE INTEGRIDADE

Eu, Inês Margarida Pires Aleixo, abaixo assinado, nº mecanográfico 201301659, estudante do 6º ano do Ciclo de Estudos Integrado em Medicina, na Faculdade de Medicina da Universidade do Porto, declaro ter atuado com absoluta integridade na elaboração deste projeto de opção.

Neste sentido, confirmo que **NÃO** incorri em plágio (ato pelo qual um indivíduo, mesmo por omissão, assume a autoria de um determinado trabalho intelectual, ou partes dele). Mais declaro que todas as frases que retirei de trabalhos anteriores pertencentes a outros autores, foram referenciadas, ou redigidas com novas palavras, tendo colocado, neste caso, a citação da fonte bibliográfica.

Faculdade de Medicina da Universidade do Porto, 25/02/2021

Assinatura conforme cartão de identificação:

Inês Margarida Pires Aleixo.

U.PORTO

FMUP FACULDADE DE MEDICINA UNIVERSIDADE DO PORTO

UC Dissertação/Projeto (6º Ano) – DECLARAÇÃO DE REPRODUÇÃO

NOME

Inês Margarida Pires Aleixo

NÚMERO DE ESTUDANTE	E-MAIL
201301659	impaleixo@gmail.com

DESIGNAÇÃO DA ÁREA DO PROJECTO

Psiquiatria e Saúde Mental

TÍTULO ~~DISSERTAÇÃO~~/MONOGRAFIA (riscar o que não interessa)

Female Sexual Response: Models, Sexual Dysfunctions and Clinical Approach

ORIENTADOR

Professor Doutor Manuel António Fernandez Esteves

COORIENTADOR (se aplicável)

--

ASSINALE APENAS UMA DAS OPÇÕES:

É AUTORIZADA A REPRODUÇÃO INTEGRAL DESTE TRABALHO APENAS PARA EFEITOS DE INVESTIGAÇÃO, MEDIANTE DECLARAÇÃO ESCRITA DO INTERESSADO, QUE A TAL SE COMPROMETE.	☐
É AUTORIZADA A REPRODUÇÃO PARCIAL DESTE TRABALHO (INDICAR, CASO TAL SEJA NECESSÁRIO, Nº MÁXIMO DE PÁGINAS, ILUSTRAÇÕES, GRÁFICOS, ETC.) APENAS PARA EFEITOS DE INVESTIGAÇÃO, MEDIANTE DECLARAÇÃO ESCRITA DO INTERESSADO, QUE A TAL SE COMPROMETE.	☒
DE ACORDO COM A LEGISLAÇÃO EM VIGOR, (INDICAR, CASO TAL SEJA NECESSÁRIO, Nº MÁXIMO DE PÁGINAS, ILUSTRAÇÕES, GRÁFICOS, ETC.) NÃO É PERMITIDA A REPRODUÇÃO DE QUALQUER PARTE DESTE TRABALHO.	☐

Faculdade de Medicina da Universidade do Porto, 25/02/2021

Assinatura conforme cartão de identificação: Inês Margarida Pires Aleixo.

DEDICATÓRIA

"Deus quer, o homem sonha, a obra nasce."

In Mensagem, Fernando Pessoa

Este trabalho é o final de um Caminho que contém:

- Altos e muitos baixos
- Muitos sonhos
- Carinho e dedicação
- Muitas horas de estudo
- Noites mal dormidas
- Café e chocolates
- Jantares e saídas com amigos a que não fui
- Férias interrompidas
- Dois doentes da Medicina Interna que me marcaram e não vou esquecer
- Abraços, sorrisos e muitas palavras de amizade
- Resiliência e motivação.

Este Caminho não seria possível sem os meus Pais, Irmão, Tia e Avós. A Eles tudo devo.

Agradeço a todos os meus amigos, os que sempre me apoiaram, acreditaram em mim e ficaram felizes pelas minhas conquistas. A todos os meus colegas e amigos de curso e de faculdade, que tornaram o Caminho mais leve e alegre e que sempre me integraram tão bem. Aos meus Professores da FMUP que, de uma forma ou de outra, me inspiraram a ser melhor pessoa e a profissional que ambiciono ser no futuro. Às psicólogas do GAE (Gabinete de Apoio ao Estudante) da FMUP, por toda a ajuda e disponibilidade. À Lina e à Marta (Associação de Estudantes da FMUP), à equipa da Teresa (fotocópias da FMUP), às senhoras do Refeitório do HSJ e do HealthBar (01 da FMUP) e ao falecido Sr. David, pelo sorriso sincero sempre presente e palavras amáveis constantes. Aos técnicos da Biblioteca FMUP e aos seguranças do CIM, pelo apoio e amizade.

Um Grande Bem-Hajam!

Este trabalho é também o início de um novo Caminho.

Vivemos tempos duros devido à pandemia causada pela COVID-19, quer a nível mundial quer nos hospitais e seio de muitas famílias portuguesas. Infelizmente, apesar da vacinação, acredito que viveremos ainda muito tempo a par com a SARS-CoV-2.

Espero conseguir dar o meu contributo nesta pandemia (e nas que virão), na melhoria da saúde e da qualidade de vida de quem se cruzar comigo. Esta é a Missão.

Dedico este trabalho ao meu muito querido

Avô Manuel

Que tanto me queria ver formada.

Fazes parte de mim,

Nunca te esquecerei.

ABSTRACT

Background: Sexual health is an important variable and contributor to the physical, emotional, mental and social well-being of an individual, and to a satisfactory relationship in general. Everyone has the right to live their sexuality in a free, healthy and rewarding manner. Sexual dysfunctions are a common problem among women and their definitions have evolved together with empirical studies and new theoretical models closer to the female reality.

Aim: To describe the theoretical models that explain the female sexual response, to present clinical definitions of women sexual dysfunctions and discuss several clinical approaches to each dysfunction. Also to draw attention to these questions in the medical office, due to the impact they might have in a woman's life.

Methods: This narrative review was written based in an overview of the literature searched in MEDLINE and in reading area books.

Discussion: This section presents the three major topics this narrative review focus on: models of female sexual response, DSM-5 definitions of women sexual dysfunctions and proposals for their clinical approach. The sexual dysfunctions' characteristics, risk factors, differential diagnosis and the impact in the couple's life is discussed, as well as the importance of a holistic evaluation of a woman with these complaints. There are also discussed several techniques to a clinical approach, without forgetting that sexual dysfunctional comorbidities in the same woman are frequent.

Conclusion: This narrative review can be a valuable contributor in improving sexual communication skills of general/specialized physicians and even to ordinary people interested in the theme. It provides objective information, easy to read and stresses its relevance for women. It is hoped that this review stimulates dialogue amongst colleagues and more scientific research in the field.

Keywords: sexual arousal, sexual health, orgasm, dyspareunia, vaginismus, vulvodynia

INTRODUCTION

Sexual health is defined by the World Health Organization (WHO) as "a state of physical, emotional, mental and social well-being in relation to sexuality; it is not merely the absence of disease, dysfunction or infirmity. (…) requires a positive and respectful approach to sexuality and sexual relationships, as well as the possibility of having pleasurable and safe sexual experiences, (…)" [in www.who.int]. Sexual health cannot be fully understood without a wide consideration of sexuality, which implies several behaviors and outcomes relevant to this issue. WHO defines sexuality as "a central aspect of being human throughout life encompasses sex, gender identities and roles, sexual orientation, eroticism, pleasure, intimacy and reproduction. Sexuality is experienced and expressed in thoughts, fantasies, desires, beliefs, attitudes, values, behaviors, practices, roles and relationships. (…) Sexuality is influenced by the interaction of biological, psychological, social, economic, political, cultural, legal, historical, religious and spiritual factors. "[in www.who.int].

Sexual dysfunctions are a common and widespread problem among women, particularly those who seek routine gynecological care, although few prevalence and incidence data are available (1, 2).

Definitions of women sexual response had evolved in the last decades, since Masters and Johnson's linear model of human sexual response in the 60's. In the American Psychiatric Association's Diagnostic and Statistical Manual of Mental Disorders 4th edition (DSM-IV-TR), definitions focus on genital responses (e.g. genital swelling and lubrication) and traditional signs of desire and arousal prior to sexual activity (e.g. sexual fantasies and masturbation) and neglects women's sexual satisfaction components as intimacy, respect and trust, communication, vulnerability and the need for pleasure. Thus, DSM-IV-TR clearly relies on the traditional human sex response cycle from Masters and Johnson and Kaplan's models that, undoubtedly is useful for understanding men's sexual function/dysfunction, but not for women (3-5).

Female sexual function can be affected by several psychological, social and clinical conditions leading to negative effects on interpersonal and social relationships, and on the well-being and quality of life in women (2, 4). Although its importance throughout women lifespan, the discussion with the physician is limited partially due to limited time for medical appointments and perceived taboos, and because most professionals lack sexuality competences to address

these problems. In addition, few protocols are available for the discussion and management of organic and non-organic sexual complaints at the medical office (2, 6).

The purpose of this narrative review is to describe the theoretical models that explain the female sexual response, to present clinical definitions of sexual dysfunctions in women by Diagnostic and Statistical Manual of Mental Disorders 5th Edition (DSM-5) and discuss the evolution from older DSM-IV-TR designations and finally to introduce and discuss several clinical approaches to each sexual dysfunction. Another intention of this work is to provide brief information for easy and quick reading accessible to all interested, expecting that can shorten the gap between the physician and its patient, and eventually help many women to have a more happy and fulfilled sexual life.

METHODS

This narrative review was written based on two central sources of information: a textbook from the European Society for Sexual Medicine, kindly given in by this work mentor, and the DSM-5 Manual. Additional literature research was conducted in MEDLINE database during the month of October, 2020. Research was made using the terms “female sexual desire”, “female orgasm model”, “human sexual response” and “sexual response cycle”. Original articles and narrative reviews whose focus is the woman were included; the ones whose focus is the man or both man and woman were excluded. The articles and reviews’ title should have at least one of the terms: female sexual response/arousal, sexual models, response cycle, sexual function/dysfunctions, desire/arousal disorder or clinical management. Exclusion criteria were inappropriate topics (neuroanatomy and function of human sexual behavior, brain imaging during sexual response cycle, anatomy of the vulva/genital anatomy, hormonal therapy) and opinion articles.

DISCUSSION

This section is divided into the three concerns this narrative review focus on: models of female sexual response, female sexual dysfunctions and their clinical approach.

1. MODELS OF FEMALE SEXUAL RESPONSE

1.1. Linear models

Masters and Johnson were the first researchers to study the physiology of both men and women sexual response. They suggest a model in their original book named "Human sexual response" published in 1966 named EPOR model (Figure 1). It characterized the response as a continuous linear process characterized by four stages: Excitement (E), Plateau (P), Orgasm (O) and Resolution (R) (7).

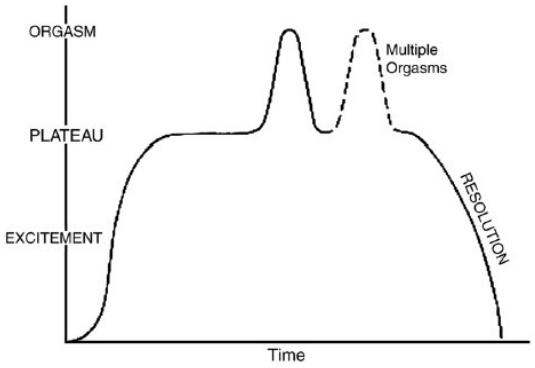

Figure 1. Masters and Johnson's model of human sexual response. [withdrawn from (6)]

According to this model, the sexual response constructs from a growing sexual tension (excitement), followed by a plateau or a stationary phase which culminates in an orgasm or, as it was noted, in multiple orgasms in some women. The response ends with a resolution period, showing relieve of the initial sexual tension.

The Masters and Johnson's model has been widely accepted and turned to be the basis for the former sexual response models and also a big ally in clinical practice in understanding common sexual dysfunction in both sexes.

Although its importance, several limitations were pointed to this model. In fact, it fails to describe the highly variable patterns of response seen between women or even the variability in response between different episodes in the same woman. The model traduces a linear progression, focusing predominantly on the physiologic aspects of sexual response and not considering other important factors, especially to women, such as subjective, psychological or interpersonal aspects. Also, it considers that a sexually functional woman is always responsive to sexual stimulation, not giving importance to sexual desire or libido (3, 6-9).

In 1974, Helen Kaplan introduced a new component to Masters and Johnson's model – Desire - based on her clinical experience as a sex therapist. This model was then named DEOR model: Desire, Excitement, Orgasm and Resolution (Figure 2) (7).

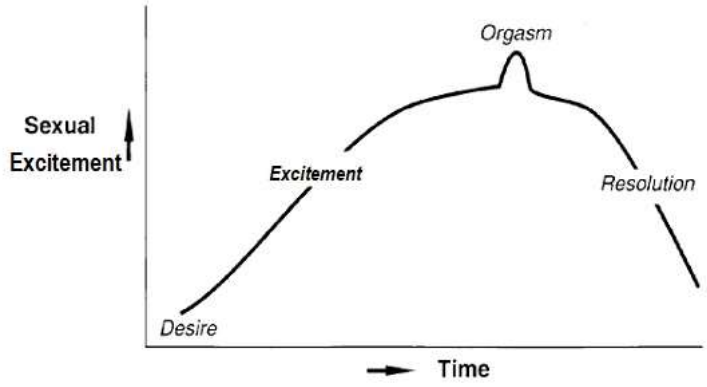

Figure 2. Kaplan's human sexual response. [adapted from (9)]

Characteristically, sexual desire consists of physiologic and psychologic components of libido, which are mediated by neural centers in the limbic system but are also influenced by hormones, such as androgens, and psychosocial factors. For Kaplan, this phase is seen as necessary to the development of adequate excitement and subsequent orgasm; these two are considered peripherally based processes mediated by centers in the spinal cord. The female sexual response starts with a spontaneous sexual desire and progresses in direct linear fashion, thus showing what happens under normal circumstances (7).

1.2. Circular models

A circular sexual response pattern was first described by Whipple and Brash-McGreer (7). This kind of model acknowledged the cyclic nature of women's sexual response, i. e. the role that satisfying sexual experiences have on the positive reinforcement of their forward sexual encounters. On the contrary, unpleasant or forced sexual experiments can lead to losing interest and desire for sexual activity (4, 7, 8).

Whipple and Brash-McGreer described four stages: seduction (includes desire), sensations (excitement and plateau), surrender (orgasm) and reflection (resolution) (Figure 3). Although this model could have brought some novelty, the process of change throughout these stages did not differ substantially from those in the previous linear models and they have not been widely accepted as independent phases of female sexual response (7).

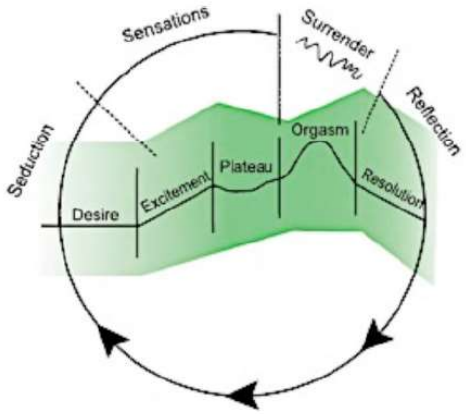

Figure 3. Whipple and Brash-McGreer proposal of a circular model for women's sexual response. [withdrawn from (7)]

On the early 2000's, Rosemary Basson presented an alternative sexual model for healthy women. Her observations concluded that women experiences the sexual response phases in an overlapping manner instead of sequential, well defined stages (Figure 4) (8).

The previous linear models assumed spontaneous sexual desire but Basson's model features a responsive form of desire, obtained once sexual arousal is achieved and includes mental and physical variables, which traduces a more complete yet complex response (3). Accordingly to this, Basson says a woman is desire neutral and if she experiences adequate intimacy from her partner, she may seek or be receptive to sexual stimuli (Figure 4). This receptivity allows the woman to turn desire neutral into sexually aroused. The trigger for engaging into sexual activity

could be a variety of reasons such as desire to express love, desire for increased emotional closeness and intimacy or just wish to receive and share physical pleasure. Spontaneous sexual drive might also occur in the form of sexual thoughts, sexual dreams and fantasies but when it comes to a dual relationship, the woman is likely to be at the "baseline" (7, 8).

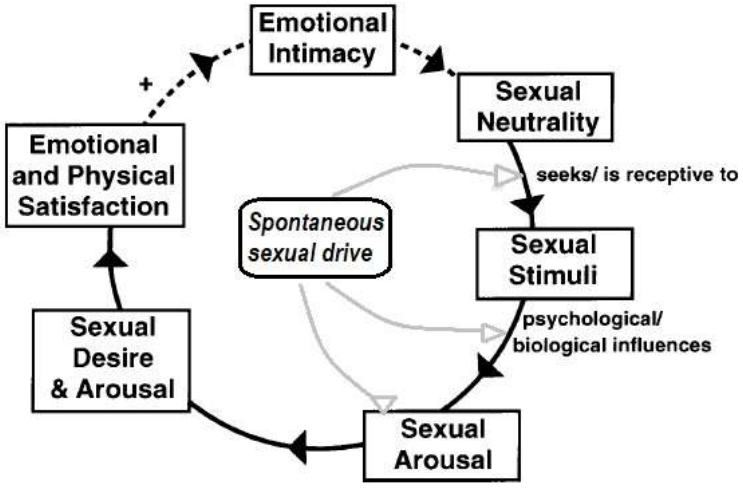

Figure 4. Basson's alternative women sexual response cycle beginning with sexual neutrality [adapted from (8)].

In Basson´s model, sexual arousal that occurs in women depends on psychological and biological factors like the fear for sexually transmitted diseases, past negative sexual experiences and abuse, inadequate birth control and low self-image. If the woman sexual partner stimulates her in the way she enjoys/wishes, if they have enough time to get aroused and if she can stay focused, her sexual excitement and pleasure intensify. Physical and emotional satisfaction will increase and strengthen bonds of emotional intimacy, what leads to further motivate the sexually neutral woman engaging new sexual approaches (Figure 4) (1, 3, 4, 7-9).

As one can understand, this circular model do not consider orgasm and resolution being completely mandatory to women sexual satisfaction, whereas the previous linear models did. The feeling of emotional and physical fulfillment, with or without orgasm, is highly individual of course, but generally results when the stimulation continues sufficiently long, the woman can stay focused and enjoy sexual arousal without any negative outcome such as pain (3, 7).

Basson's model brought highlight for the subjective nature of sexual satisfaction in opposition to the objective endpoint named orgasm, thus reflecting more consistently the different and varied sexual experiences among all women and in the same woman as well.

2. FEMALE SEXUAL DYSFUNCTIONS

Adult women without sexual complaints have sexual response cycles different from the linear ones in which four discrete phases exist and are non-overlapping. They have a sexual response that blends the ones of mind and body and their motivation for the sexual engagement is far more complex than simply the presence or absence of sexual desire. To increase emotional closeness with the partner and to increase her own well-being and self-image (feeling loved, appreciated and desired) are some of the motivations (1, 3, 8).

Some women report desire as spontaneous or "innate" leading to arousal or to more enthusiasm seeking and receiving sexual stimuli. This type of desire has great variability among women and could be related to the menstrual cycle, thus decreasing with age and increasing at any age when a new relationship starts (1). One important finding is the poor correlation that female genital engorgement with subjective arousal have in response to sexual stimulation, contrastingly with what happens in men (genital congestion – erection – as a consequence of subjective arousal) (8).

Women sexual arousability may be negatively influenced by contextual, psychological and biological factors (1, 4, 10). The first traduces concern about the safety of the act itself (such as risk of an unwanted pregnancy, sexually transmitted diseases or emotional/physical safety), context or privacy being appropriate, enough time or tiredness. Not feeling emotionally close to the partner during sexual activity may also increase the distress within the relationship (1). Personal psychological factors deals with women self-image, mood, self-esteem, emotional instability and being anxious or not, for example. There is a high correlation of desire disorder with weak self-esteem, low self-image, mood instability and tendency towards anxiety and neuroticism (1, 4); women with a high need to be in control and that cannot tolerate the feeling of losing it, specifically their body's reactions, have an enormous difficulty to sexual arousal and orgasm. Other factors could be memories from coercive or abusive past sexual experiences and expectations of negative outcomes, such as dyspareunia (1). Sexual dysfunction is strongly correlated with depression and could also be a side-effect of treatment with antidepressants (1, 3, 7) .

In the DSM-5 three female sexual disorders are described: Female Orgasmic Disorder, Female Desire/Interest Disorder and Female Genito-Pelvic Pain/Penetration Disorder (11).

2.1. Female Orgasmic Disorder (F52.31, DSM-5)

According to the DSM-5, symptoms characteristic of a woman with Female Orgasmic Disorder (FOD) are the presence of marked delay in, marked infrequency of, or absence of orgasm, and/or markedly reduced intensity of orgasmic sensations; these have to be experienced on almost all or all occasions (approximately 75%-100%) of sexual activity (in identified situational contexts or, if generalized, in all contexts) (11).

Four criteria for the diagnosis of FOD must be meet and consists on persistency of symptoms for a minimum duration of approximately 6 months, symptoms that cause clinically significant distress in the individual and are not better explained by a nonsexual mental disorder or as a consequence of severe disturbance in the relationship (e.g. partner violence) or other significant stressors and it's not attributable to the side effects of a substance/drug or another medical condition (7, 11).

FOD can be characterized as being lifelong or acquired, and generalized or situational. If the disturbance have always been present since the woman turned sexually active or only after a period of normal sexual functioning can help distinguish lifelong from acquired FOD; the generalized FOD is the disorder that occurs under any circumstances (including masturbation) and whatever the type of stimulation or sex partner, whereas women with situational FOD are only able to experience orgasm in certain contexts, by engaging in certain types of sexual activity or with specific sex partners (7, 11).

Women present an enormous variability in the intensity and type of stimulation that originates orgasm. Moreover, high variability exists in the subjective description of orgasm, suggesting a lot of different ways for experiencing it between women and also in different occasion by the same woman. For example, while many women need the stimulation of their clitoris for orgasm, other women (a small proportion, in fact) says that they always had orgasm with penetration (7). Nevertheless, global sexual satisfaction is not strongly correlated with having or not an orgasm, contrasting to what Masters and Johnson demonstrated in their linear sexual response model. Many women report high levels of sexual satisfaction even if scarcely or never had had an orgasm (8, 12).

To date, there is no known biological cause of FOD. What is known is that biological factors like hormonal changes (low testosterone and estrogens), pregnancy or menopause are associated with orgasmic disorder, as well as some medical and chronic conditions, for example cardiovascular diseases, diabetes, hypothyroidism, Parkinson disease, multiple sclerosis and

inflammatory pelvic disease (7). Conditions like pelvic nerve lesion (due to radical hysterectomy) or spinal cord lesions also impacts orgasmic function. Pharmacological treatments, such as SSRI's, b-blockers and antipsychotics, are also known to trigger orgasmic difficulties (7).

Although aging is associated with sexual problems, as in lubrication impairment, the truth is that sexual satisfaction and general well-being tend to increase with age. For women, one of the most critical periods in the aging process is the menopausal transition; in fact, at orgasm measured in laboratory, perimenopause compared to younger women report fewer vaginal contractions and rarely rectal ones, suggesting a generalized reduction in the intensity of orgasm expression (7).

The psychological risk factors for FOD most commonly discussed are emotional distress (untreated anxiety, depression, history of sexual and physical abuse) and educational and religious issues (7, 12). Societies with their cultural and historical dogmas shape much of an individual's sexuality and sexual thoughts; indeed, it is likely that religious people feel more guilt when having sex, particularly if they feel rewarded (7).

How the couple communicate, or not, seem to be important for being successful in orgasm. Women who feel most comfortable in expressing their likes or dislikes, fantasies and desires with their partners, will get a more satisfactory and fulfilled sexual life. Also, direct clitoral stimulation activities (cunnilingus, manual stimulation of the genital) have been suggested to maximize orgasmic responsiveness in women, meaning that not only women need to know what they like (hence the important role of masturbation) but also be capable to express it to their partners (6, 7, 12).

2.2. Female Sexual Desire/Interest Disorder (F52.22, DSM-5)

The Diagnostic and Statistical Manual of Mental Disorders defines four criteria for the diagnosis of sexual desire/interest disorder in women. The first states that sexual interest or desire is absent or diminished, and can be documented by at least three of the following: 1. Interest absence or reduction on sexual activity; 2. Absence or reduction of sexual/erotic thoughts or fantasies; 3. None or diminished initiative to sexual activity and usually lack of responsiveness to the sexual approaches made by the partner; 4. Absent or reduced sexual pleasure/arousal during intercourse in almost all or all (75% to 100%) sexual encounters, being either situational or generalized; 5. Absence or reduction of sexual interest/arousal as a response to any erotic/sexual stimuli (for example, verbal/visual/written stimuli) – named *responsive desire*; 6.

None or diminished genital/non-genital response (reduced lubrication/vaginal vasocongestion, tachycardia and tachypnea) during intercourse in almost all or all (75% to 100%) sexual encounters, being either situational or generalized (11).

The second and third criteria states that symptoms previously described are present for a minimum period of six months, causing significant distress in the woman's life. The last piece for the diagnosis is that clinician should exclude other causes for the symptomatology such as a non-sexual related mental disorder or other medical condition, partner violence, external relevant stressors (like having lost the job) and drug side effects (7, 11).

Sexual desire/interest disorder can be characterized as being lifelong or acquired, and generalized or situational, in the same way as in FOD (7, 11).

A woman interpersonal context, both in the present and in the past, should be evaluated. It is known that the reason to a specific behavior is someone's beliefs and preferences; in a couple, their standards and beliefs of whom "should" initiate sexual activity is extremely relevant. Furthermore, women tend to have a decrease in her erotic thoughts or fantasies with age; also, their interest may be inversely proportional with the relationship duration (7).

Adaptive changes to the sexual interaction of a woman can be transitory; they might result from personal issue or problems related to her partner or couple. It is only when symptoms last for a minimum of six months and bring significant suffer and discomfort to a woman's life, that we can say we are in the presence of a sexual dysfunction (1, 6, 7). Some conditions make differential diagnosis with this disorder: major depressive disorder, in which interest or pleasure in the daily life that used to be enjoyable is markedly reduced, can explain symptomatology; sexual difficulties associated with diseases like diabetes mellitus, endothelial disturbance, thyroid and central nervous system diseases and lateral effects of substances/drugs (6, 11).

2.3. Female Genito-Pelvic Pain/Penetration Disorder (F52.6, DSM-5)

The Female Genito-Pelvic Pain/Penetration Disorder refers to four dimension of symptoms, according to DSM-5: difficulty in intercourse; genito-pelvic pain; fear of pain or vaginal penetration; and pelvic floor muscular tension (11).

The diagnosis is made by four criteria: 1-Persistent or recurrent difficulties with at least one of the following: vaginal penetration during intercourse; vulvovaginal or intense pelvic pain during or in the penetration attempt; fear or intense anxiety of vulvovaginal/pelvic pain in anticipation

of, during or as a result of vaginal penetration; high contraction or tension of the pelvic floor muscles during the penetration attempts; 2- Symptoms listed before lasts for a minimum of six months; 3- The same symptoms bring clinically significate suffer to the woman; 4- The sexual dysfunction diagnosis excludes a non-sexual mental disorder or a consequence of a severe disturbance in the relationship (for instance, partner violence) or other stressing factors and it's not due to the side effects of a drug or substance or any other medical condition (7, 11).

The Female Genito-Pelvic Pain/Penetration Disorder can be classified as primary, if the pain has been present since the woman became sexually active, or acquired/secondary, if it started after a regular period of sexual functioning; other subtypes include genito-pelvic pain generalized vs situational, according to the pain that exists in any occasion and with anyone vs the pain that exists in a particular situation (for example, in routine gynecological examinations) or with a certain partner, respectively (11). However, occasional pain during intercourse or sexual activity may occur and it's normal (7). Other relevant features that may contribute for the disorder etiology and therefore treatment are: partner characteristics like sexual issues or its health condition; relationship problems such as poor communication and sexual desire differences; individual vulnerability (having low self-body image or a history of sexual or emotional abuse), a psychiatric condition (anxiety or depression) or external stressors (1, 12), like having lost the job or being mourning; religious or cultural questions (inhibitors to pleasure or sexual activities) (13); medical conditions important to the prognosis, course or treatment of this disorder. It is important to evaluate each of these features because they may contribute differently to a woman's symptoms.

According to previous DSM edition, sexual and physical violence felt by women in a relationship was often mentioned as a predictor of painful disorders like vaginismus and dyspareunia; nowadays, this is a controversial association (7). Another point is women with a past medical history of vaginal infections referring to the onset of pain after being correctly treated. Moreover, during the clinical interview is relevant to ask about pain in the use of tampons as it could be a risk factor for the development of genito-pelvic pain/penetration disorder (7).

Complaints related to genito-pelvic pain are stronger in the beginning of adulthood and in the post menopause and postpartum periods. Indeed, the increase in the incidence of pain during post menopause intercourse could be due to vaginal dryness or vulvovaginal atrophy, conditioned by the decreasing estrogen levels (3). Women also complaint about having difficulties in intercourse during pre-menopause. In some circumstances, women with genito-pelvic pain/penetration disorder are also diagnosed with other medical conditions such as

Liquen Sclerosus, Endometriosis, Vulvovaginal Atrophy or Pelvic Inflammatory Disease; thus when receiving treatment, they report an improvement in the disorder symptoms (7). Furthermore, the clinician should evaluate the suitability of her partner's sexual stimuli and male common dysfunctions, as erectile dysfunction and premature ejaculation, and look for other sexual problems in the woman (comorbidities are frequent) (5, 7, 14).

3. CLINICAL APPROACH OF FEMALE SEXUAL DYSFUNCTIONS

A sexual complaint becomes a female sexual dysfunction when it causes personal distress as determined by the affected woman (not her sexual partner), and the diagnosis also requires the symptom to be persistent and not explained by a medical condition or a drug/substance side effect. The most common complaint is low libido, followed by problems with arousal and lastly pain disorders (6, 7).

The management of a woman with sexual complaints begins with a systematic approach involving an empathic history-taking, a general physical and gynecological examination and a prescription of rationale investigation. The clinical history should first focus on the patient complaint: duration, in what occasion does it occur, if it is just with one specific sexual partner or not, if she/the couple ever tried something that relieved or exacerbated the symptom, and if there are any accompanying symptoms. A complete history of personal background should be assessed: previous trauma/surgery of spinal cord/pelvis/gynecological apparatus; gynecological history (age of menarche, pregnancies and menopause – if applied; number of pregnancies, type of delivery, problems delivery-related – it is known that difficult vaginal delivery may cause denervation or dyspareunia); chronic illnesses that may affect sexual functions include spinal cord injuries, thyroid disease, diabetic neuropathy, surgical or medical castration with accompanying marked decreased estrogen and testosterone levels, cardiovascular disease and depression, are some of the examples (1, 6, 7, 11, 13). Moreover, chronic medication should be questioned due to the ability of interfering with mood and libido (antidepressants, antipsychotics, sedatives), with blood flow to the genitalia decreasing arousal and/or lubrication (certain antihypertensive and antiestrogen drugs) and to increase sex-hormone binding

globulins – therefore decreasing free testosterone - such as oral contraceptives (6). Asking for the consumption of illicit drug use, alcoholism and tobacco is also relevant, due to the fact of being related with some sexual dysfunctions and vascular insufficiency leading to a decrease in the genital blood flow (6, 11). The assessment of woman psychosocial context is relevant: how is her relationship satisfaction and how she feels about communicating sexual issues with her partner, external stressors (work, child care), lifestyle patterns such as adequate sleep/diet/exercise, and how she feels about her body image (7).

Women with pelvic floor disorders, including urinary and anal incontinence and pelvic organ prolapse, will also report the negative impact these disorders have on their sexual life. Epidemiologic studies referred by Kammerer-Doak, et al (6) assessed the effects of urinary incontinence and pelvic organ prolapse as well as vaginal anatomy on sexual function. They report that prolapse itself did not affect frequency or subjective satisfaction of intercourse, although more advanced stages may impair sexual life and increase rate of abstinence; loss of urine during intercourse can be stressful and occurs either with vaginal penetration in women with stress incontinence or with orgasm in women with overactive bladder symptoms; no association was noted between vaginal anatomy and dyspareunia complaints (6). It is known that childbirth impairs sexual function but fortunately most women report pre-pregnancy orgasmic function and no severe pain intercourse by six months post-partum. Risk factors for this impairment include continued breast feeding and severity of genital tract trauma (perineal lacerations and assisted vaginal delivery) (6).

Further investigation includes the exclusion of biological etiology with the prescription of laboratory tests for the measurement of estrogen levels, estradiol and follicle-stimulating hormone (FSH), luteinizing hormone (LH,) thyroid stimulation hormone (TSH) and prolactin (women with signals of thyroid disease and hyperprolactinemia), hypothalamus-pituitary-gonadal and adrenal axis failure (gonadotropin-releasing hormone, thyrotropin-releasing hormone, adrenocorticotropic hormone and growth hormone) (7). The role of androgens in the development of female sexual dysfunctions is controversial, and thus some references argue that there is no correlation between low sexual desire and serum testosterone levels in women and that testosterone level measurements cannot be recommended until more accurate measures of androgenic activity emerge (7). On the contrary, other references state the positive correlation between testosterone and sexual desire (6).

One tool that can be used to guide further investigation, save time and provide direction or greater focus on the sexual dysfunction is the Female Sexual Function Index (FSFI) questionnaire,

validated based on DSM-IV-TR. It is a standardized self-report questionnaire available online at www.fsfi-questionnaire.com. (15) The index assess desire and arousal feelings, the woman perception of being lubricated, ability to reach orgasm, discomfort or pain during penetration and the degree of satisfaction both on emotional closeness and sexual activity with her partner (6, 15).

The physician should educate patients with basic information on sex, so that they become familiar with their sexuality and comprehend that sexual function is much more beyond the reproduction aim. Lara, et al (2) describe the TOP model in their original article as a tool for physicians to provide information and promote sexual education within theirs patients; the TOP model involves three levels of intervention: **T**eaching the sexual response; **O**rienting women toward sexual health; **P**ermitting and stimulating sexual pleasure (2).

At the first level – **T**eaching -, patients are given an explanation on genital anatomy and on the mechanism of some elements of the sexual response (desire, arousal, orgasm). At the level of **O**rienting, women are taught to construct their healthy sexuality and empowered on knowledge on sexually transmitted diseases as well as contraceptive methods; talk about affectivity, search for emotional and physical interactions with partners to achieve sexual pleasure (also possible by masturbation), taught that genitals have nerve endings that, if properly stimulated, guide to pleasurable sensations, claim all women have the potential to reach orgasm but they do not always reach it only with penetration, are some of the examples. At the third level – **P**ermitting – women are empowered about their right to a healthy expression of sexuality without feeling guilty nor repressing the will on engaging in sexual activities: women should know that human body is skilled with physiological mechanisms that cause an individual to feel pleasure when eating or having sex, and that the experience of sexual satisfaction is important for the emotional and physical well-being, independent of age and some health conditions (2).

The up-to-date literature focus in the treatment according to the nature of the sexual problem (arousal, desire, orgasm and pain), although the classification by DSM-5 cluster disorders of arousal and desire into Sexual Desire/Interest Disorder. This section will present several clinical strategies validated based on DSM-IV-TR diagnoses of Hypoactive Sexual Desire Disorder (HSDD), Female Sexual Arousal Disorder (FSAD), Female Orgasmic Disorder (FOD) and Sexual Pain Disorder – Dyspareunia and Vaginismus (12).

3.1. Clinical approach to HSDD and FSAD

Literature on treatment focuses primarily on HSDD, since the sexual desire disorder is the most common complaint among women, although the frequent comorbidity between sexual desire and arousal disorders. Literature also propose that strategies described for treating HSDD may be as effective for FSAD as they are for the former disorder (2, 12).

3.1.1. Cognitive behavioral therapy

Cognitive behavioral therapy (CBT) is an intervention proposed to HSDD treatment, but not only. The cognitive component focuses on the way an individual interprets a situation; it examines automatic thoughts – which are not innate, they are learned throughout life and arise from our beliefs. The therapy suggests the individual to identify automatic thoughts in a determined situation and beliefs behind those thoughts; then, the focus is on maladaptive thoughts – the ones that provoke negative emotions and lead to problematic behavioral or physiological outcomes. The psychotherapist promotes exercises during the session in order to challenge patients to replace thoughts and beliefs, and also invites them to do the same at home. The behavioral component works on the alteration of sexual and non-sexual behaviors that influence sexual desire, as in the improvement of skills for increasing sexual stimuli and the management of sleep deprivation and child care (7).

3.1.2. Sex therapy

Sensate focus in sex therapy was first described by Masters and Johnson; it emphasizes on sensate focus exercises, sexuality education and partner communication skills (7, 12, 13). The exercises gradually guide the couple from non-sexual physical contact to sexual physical contact. They follow a program of homework exercises, in which sexual intercourse is “forbidden”; starting with mutual sensual and non-genital stimulation, each one discovers and identifies body areas prone to pleasurable emotions, and gradually more areas are included. Mindfulness techniques teach women to use sustained attentional focus to bring sensory information – sexual and nonsexual – and their feelings into awareness. Exercises also include improving communication between the couple in order to communicate their needs, concerns and desires in ways that enhances mutual understanding (7, 12, 13). By “forbidding” intercourse, the woman

can focus on physical pleasure in a non-threatening way, reducing performance demand and the resulting anxiety; also, allows for sexual fantasy training and cognitive restructuring (7, 12).

The expectation with sensate focus therapy is empowering the couple to find pleasurable stimuli besides sexual intercourse, so that the woman be able to engage on sexual activity motivated, with an increasing desire and can herself feel confident to seek her partner. The need for intimacy is an important motive to women, thus making Basson's circular sexual response model reliable and accomplished (3, 4, 8, 9, 12).

3.1.3. Hormone Therapy

Although its' controversial use (no approval from FDA and no recommendation from American Endocrine Society), testosterone is commonly prescribed off-label for the treatment of sexual desire disorder (6, 7). Clinical trials have consistently demonstrated that transdermal testosterone therapy improves sexual function and satisfaction in women who have been diagnosed with HSDD (2). Moreover, transdermal testosterone may minimize the adverse effects but it is known the negative effect on the lipid profile and liver damage. The long-terms risks include irreversible clitoral enlargement, voice changes and male pattern baldness; the effects on breast cancer, insulin resistance and metabolic syndrome are unknown (6, 7).

Postmenopausal and surgically castrated women benefit from testosterone therapy, either oral or transdermal, with significant improvement in sexual desire, arousal and orgasm (when compared to estrogen therapy alone). The transdermal testosterone (patches) have been approved only for use in surgically menopausal women in Europe (2, 6, 7).

The estrogen use is inconsistent on the improvement of female sexual function. Older studies did not find any changes in satisfaction, orgasm or frequency of sexual intercourse or masturbation; contrastingly, recent clinical trials have reported benefits of estrogen therapy on sexual desire, pleasure, orgasmic frequency and vaginal lubrication (thus dyspareunia). Estrogen therapy is required with testosterone administration. It is of extreme clinical relevance to discuss with patients the pros and cons of using hormone therapy and explain the potential hazards before any supplementation is considered; careful discussion with patients evaluating the potential hazards must take place before any testosterone supplementation is considered – women with endogenous testosterone-to-estrogen ratios have greater risk to cardiovascular disease and insulin resistance (2, 6, 7).

3.1.4. Tibolone

Tibolone is a synthetic hormone with androgenic, progestrogenic and estrogenic properties. Scientific evidence show that tibolone increases sexual desire, sexual fantasies and clitoral vascular circulation, when compared with conventional hormone therapy in post-menopausal women. However, a recent work found that tibolone increases the risk of recurrence in breast cancer patients, thus it currently has no approval for its medical use (6, 7, 13).

3.2. Clinical approach to FOD

The gold-standard treatment for women experiencing orgasm problems (after excluding a biological etiology) is CBT, where the focus is the empowerment to reach orgasm as desired under any circumstance (7). CBT stands on promoting changes in negative attitudes and thoughts towards sexuality and blocking-sexuality thoughts as guilt or shame. Improving body self-image and self-esteem is also something to work on. Many women develop performance anxiety towards reaching orgasm that prevents them to appreciate pleasurable erotic sensations, thus misdirecting their attention. An analysis throughout the quality of the relationship and level of intimacy might be important as well. Behavioral exercises include directed masturbation, sensate focus therapy and systematic desensitization; sex education, communication skills training and Kegel exercises may be also included (2, 7, 12, 13).

Directed masturbation helps woman to visually identify and manually stimulate genital areas that are pleasurable to her. It is important that she can easily recognize (and report to a partner) these areas, and feel comfortable with this attitude. Because she can perform masturbation alone, any anxiety or shame that may be associated with another person evaluation is eliminated. Once she feels confident (and orgasmic), the partner can join and stimulate her (7, 12, 13).

Sensate focus and systematic desensitization are the two most commonly used techniques to reduce anxiety sexuality-related. This relaxation exercises enable women to replace fear responses with relaxation ones. Sensate focus therapy is used here as it is in desire and arousal sexual disorders, practicing gradually increasing and focused body-touching exercises, first nonsexual then genital stimuli. Desensitization uses anxiety-provoking stimuli (developed by the woman and the therapist) that represent increasing threatening sexual situations; thus woman

experience fearful and relaxed responses alternately, which will result in a gradual decrease of anxiety (7, 12).

3.2.1. Pharmacotherapy

There are no pharmacological agents scientifically proven to be beneficial in enhancing orgasmic function in women. However, some medications have been studied. Among these are bupropion (an antidepressant dopaminergic-agonist), sildenafil citrate (phosphodiesterase type 5 inhibitor) and apomorphine (dopaminergic-agonist). Sildenafil is a FDA approved drug for the treatment of male erectile dysfunction, as it increases genital vasocongestion as it does in woman although its efficacy on female sexual function improvement lacks to be proven. Apomorphine showed good results in premenopausal women. For postmenopausal women, testosterone in combination with estrogen or tibolone can be considered (7).

3.3. Clinical approach to SEXUAL PAIN DISORDER – Dyspareunia and Vaginismus

The DSM-5 brought dyspareunia and vaginismus under the heading of Genito-pelvic pain/penetration disorder (11) (see chapter 2).

A complete evaluation should be made by an experienced gynecologist including clinical history (duration, context and characteristics of the pain) as well as a gynecological examination to exclude medical conditions frequently related to genital pain, in order to institute oriented treatment. Some examples of the referred common medical etiologies are: endometriosis, recurrent candidiasis, sexually transmitted infections, lichen sclerosus and lichen planus, herpes neuralgia and interstitial cystitis (2, 7). To have a diagnosis of chronic genital pain, the pain must be unexplained by another condition, must cause significant distress to the patient and must have been present for a minimum of six months (11). One should make a special attention when approaching this theme with a patient, because many women are not comfortable discussing their genitals and/or sexual activity even with a health care professional. They might also feel shame, embarrassment and guilt about the pain. Giving an empathic response, verbally and nonverbally, validating answers and women descriptions will help to provide strong rapport and encourage patients to be trusting and speak openly about their concerns (7).

Vulvodynia is often described as a vulvar discomfort, similar to a burning pain, "occurring in the absence of relevant visible findings or a specific, clinically identifiable, neurologic disorder" (7). The pain can have several presentations: localized vs. generalized (pain in a particular region of the vulva or affecting the entire region), provoked vs. unprovoked (pain in response to an external stimulus like pressure or spontaneous pain) and a mixed pattern (provoked and unprovoked). The most common subtypes are provoked vestibulodynia and generalized vulvodynia (7).

Like many other chronic pain conditions, provoked vestibulodynia has a psychological and physical pain component; this psychological component is important to isolate as it might exacerbate the pain. Many women suffering from provoked vestibulodynia have feelings of increased pain catastrophizing, fear and hypervigilance, higher levels of depression and anxiety and an increased relationship dissatisfaction (7). A multidimensional pain-approach to these patients should be performed. The treatment goals includes management of pain and muscular tension (pelvic floor muscles), strategies that help to cope with pain positively and have a reduction pain cognition (less frequent catastrophizing thoughts), and also couple therapy to improve sexual functioning (6, 7).

3.3.1. Psychotherapy

Psychotherapy is of particular interest in women with vulvodynia due to its non-invasive character and because it does not cause unwanted side effects. Psychotherapy can be used alone or in conjunction with other type of therapies.

Three techniques are described, Pain-Focused Cognitive-Behavioral Therapy (CBT), Mindfulness-Based Cognitive Therapy (MBCT) and Sex/Couples Therapy, the first being recognized as a powerful option (7). The goal in Pain-Focused CBT is helping patients to bring into consciousness thoughts, feelings and behaviors they have when experiencing pain. They should understand how these components influence each other; next, they work on the replacement of the maladaptive patterns with positive coping strategies, for example, relaxation techniques and positive self-statements. The challenge is for both therapist and patient in order to maintain long-term therapeutic gains. MBCT helps patients to remain in the present and find ways to tolerate and accept their pain; it also helps to be aware of factors that increase or decrease pain, and to attend to positive/rewarding events in her life and relationship. Sex/Couple therapy can

improve communication, reduce feelings of guilt or shame and build happy sexual encounters while managing pain (7).

3.3.2. Pelvic Floor Physiotherapy and Alternative Treatments

There is an important relation between pelvic floor muscles dysfunction and genital pain. Pelvic floor muscles are a muscular group that include anus lifter muscles and the ischiococcygeus muscles and have a relevant function in maintaining urinary and fecal continence, as well as taking part in sexual intercourse and delivery (2, 7).

Pelvic floor physiotherapy comprise a variety of techniques such as biofeedback, electrical stimulation and digital palpation, which have been successfully used in women with vulvodynia. These techniques help to decrease the resting level of muscle tension, increase woman muscular awareness and control, increase the flexibility of the vaginal opening and expose patients to penetration, in a well-controlled environment (7).

Alternative therapies such as hypnosis, acupuncture and tender-point stimulation are still in evaluation and controlled treatment studies are in need, although its promising results in preliminary evidence (7).

3.3.3. Medical Treatment

There is no scientific evidence about what class of drugs is required to treat a specific presentation of chronic genital pain. Some consider tricyclic antidepressants and anticonvulsants (gabapentin, for example) helpful for women suffering with vulvodynia, particularly the ones with generalized vulvodynia, since the pain is more constant (7).

Other drugs lack research such as topical preparations and injectable drugs: lidocaine, steroids and nitroglycerine are the most common examples. They have fewer adverse effects than previous oral medications because are applied directly to the affected area. Also, some other evidence refer the application of topic estrogen and lubricants, clearly helping with vaginal dryness with or without associated with the menopausal transition (7, 13).

3.3.4. Surgery treatment

This one is the last proposed solution to the equation. When nothing else results, these women are offered surgery – vestibulectomy, which involves the removal of the first 1–2 mm of the vaginal mucosa surrounding the introitus. The surgical area might be this restricted (to the area that experiences most pain), but may extend to the entire vulvar vestibule, this one being more successful) (7).

However, this is a surgery and like every surgery implies risks. Some examples are Bartholin´s gland cysts, increased tenderness, poorer sexual functioning and reduced lubrication. Despite the risks, there are multiple evidence to a significant reduction in pain in a significant proportion of women suffering from provoked vestibulodynia (7).

3.3.5. Vaginismus

Vaginismus make differential diagnosis with dyspareunia, since it is another form of genital pain (1). Although the marked overlap in symptoms between vaginismus and provoked vestibulodynia, the primary differences is that in vaginismus there is often a feeling of penetration avoidance (by a penis, finger or any object) although the woman expresses her wish to do so, feeling that is accompanied by anticipation of fear and (variable) involuntary contraction of pelvic muscles (1, 7).

Women with vaginismus benefits from adapted psychotherapeutic techniques targeting phobias (fear response and feelings of avoidance); education, relaxation exercises, sensate focus therapy and pelvic floor physiotherapy (to gain control over vaginal muscles) can also be successfully applied (1, 7). In particular, women with vaginismus can make great use of manual techniques at home, starting with encouraging the woman to self-touch daily for a few minutes, “as close to the introitus as possible, moving on to the insertion of her finger, a small tampon-like object and then a series of” phallic-shaped dilators (1). These dilators are purchased in increasing diameter, so that the patient begin practicing with a small one and then gradually increase the size; also, sharing placement of the dilators with the partner is helpful before the placement of a penis (1, 7).

CONCLUSION

The human sexual response models have evolved since the pioneer work from Masters and Johnson in the 60's. Empirical studies and clinical experience revealed that the majority of women have more responsive than innate (or spontaneous) sexual desire, although this exists predominantly when a new relationship starts; Basson turned out to be the great propelling of this concept. New models have appeared to portray more accurately and embracing women sexual experiences, as they blend mind and body commands and consider the importance emotional closeness with a partner has. Sexual arousal in women is often a mental excitement in response to the appreciation of the sexual stimuli and less about the awareness of the genital changes. Women sexual satisfaction greatly depend on the intimacy with the partner, than of the orgasmic response.

Much more is known about male sexual dysfunctions than the female ones: the pharmaceutical industry soon realized the potential of this market. Perhaps the responsibility for this is the good correlation between men's subjective sexual arousal and objective measuring of the genital vasocongestion response, fact that do not happen in women. The new expanded definitions in the DSM-5 try to acknowledge the highly diverse and complex nature of women's sexuality and dysfunction, thus reflecting the tendency of the sexual response phases to overlap. It is hoped that the new concepts, together with psychotherapy techniques, help to achieve a more effective management of the women's sexual problems at the medical office, that myths and traumas and fears are demystified, and that the physician-patient relationship get out of this stronger, empathetic and trustworthy.

Disclosure Statement

The author discloses no conflict of interest of any kind.

REFERENCES

1. Basson R. Women's sexual dysfunction: revised and expanded definitions. CMAJ. 2005;172(10):1327-33.
2. Lara LAS, Scalco, S.C.P., Troncon, J.K., Lopes, G.P. . A model for the management of female sexual dysfunctions. Rev Bras Ginecol Obstet. 2017;39:184-94.
3. Basson R. The female sexual response: a different model. J Sex Marital Ther. 2000;26(1):51-65.
4. Basson R. Biopsychosocial models of women's sexual response: applications to management of "desire disorders". Sexual and Relationship Therapy. 182003. p. 107-15.
5. Brotto LA. The DSM diagnostic criteria for hypoactive sexual desire disorder in women. Arch Sex Behav. 2010;39(2):221-39.
6. Kammerer-Doak D, Rogers RG. Female sexual function and dysfunction. Obstet Gynecol Clin North Am. 2008;35(2):169-83, vii.
7. Sexology ECotESfSMaEFo. The EFS and ESSM Syllabus of Clinical Sexology. First ed2013.
8. Basson R. Human sex-response cycles. J Sex Marital Ther. 2001;27(1):33-43.
9. Basson R. Using a different model for female sexual response to adress women's problematic low sexual desire. Journal of Sex & Marital Therapy. 2001;25:395-403.
10. Basson R. A model of women's sexual arousal. J Sex Marital Ther. 2002;28(1):1-10.
11. Association AP. Diagnostic and Statistical Manual of Mental Disorders. Fifth ed2013.
12. ter Kuile MM, Both S, van Lankveld JJ. Cognitive behavioral therapy for sexual dysfunctions in women. Psychiatr Clin North Am. 2010;33(3):595-610.
13. Clayton AH, Hamilton DV. Female sexual dysfunction. Psychiatr Clin North Am. 2010;33(2):323-38.
14. Brauer M. LE, ter Kuile M.M. . Sexual arousal in women with superficial dyspareunia. Arch Sex Behav. 2006;35:191-200.
15. Rosen R, Brown C, Heiman J, Leiblum S, Meston C, Shabsigh R, et al. The Female Sexual Function Index (FSFI): a multidimensional self-report instrument for the assessment of female sexual function. J Sex Marital Ther. 2000;26(2):191-208.

APPENDIX A

Author information for publishing in The Journal of Sexual Medicine

Manuscript Types

The Journal of Sexual Medicine publishes several types of manuscripts. Since JSM uses double blind peer review, all information that could identify the authors should be removed from the manuscript main document. A brief description of each type follows:

Peer reviewed article types:

- **Original Research**
  Original research papers are scientific reports from original research in sexual medicine. There is no limit on article length or the number of figures or tables, though we do request the article include a structured abstract of 400 words. It required that you include completed reporting guideline(s) with your Original Research submission to demonstrate the completeness of reporting in your manuscript. Failure to adhere to reporting best practices will result in revisions being requested ahead of publication. For more information on relevant reporting guidelines, please see the section below entitled Reporting Standards: Completeness and the Use of Reporting Guidelines.
- **Review Article**
  Review articles are timely, in-depth treatment of an issue. There is no limit on article length or the number of figures or tables, though we do request the article include an abstract of no more than 400 words. Though **narrative reviews** are welcomed, meta-analyses and systemic reviews are preferred complete with thorough adherence to the PRISMA reporting guidelines.
- **ISSM Methods Update**
  Methods updates present current best practice for research in an area of sexual medicine. They are typically commissioned by the Editors, but please contact the Chief Editor if you would like to suggest a topic. There is no limit on article length or the number of figures or tables, though we do request the article include an abstract **of no more than 400 words.**

- **Surgeons' Corner**

  Papers published in Surgeons' Corner will include those commissioned for the section, and those submitted as original research papers that focus on the technical aspects of a broad range of surgical procedures in male, female, and transgender sexual medicine. Manuscripts should adhere to the following structure: Abstract, Introduction/Background (including the rationale for a novel technique), Indications for procedure, Pre-operative preparation, Intra-operative considerations, Post-operative management and follow-up, Outcomes (including a brief review of the literature), Complications, Take-home message, References. The completed manuscript should not exceed 2500 words, excluding figures, tables, references, and the abstract.
- **Brief Communication**

  Brief Communications should be no more than 2,000 words, and include a structured abstract, up to 2 display items (figures or tables), and up to 20 references.
- **Case Reports**

  The Journal of Sexual Medicine no longer publishes Case Reports. Instead, please visit *Sexual Medicine*.

Disclosure Statement

The Journal of Sexual Medicine requires that all authors disclose any potential sources of conflict of interest. Any interest or relationship, financial or otherwise, which might be perceived as influencing an author's objectivity, is considered a potential source of conflict of interest. These must be disclosed when directly relevant or directly related to the work that the authors describe in their manuscript. Potential sources of conflict of interest include, but are not limited to, patent holding or stock ownership, membership of a company board of directors, membership of an advisory board or committee for a company, and consultancy for or receipt of speaker's fees from a company. The existence of a conflict of interest does not preclude publication in any ISSM journals. Authors must disclose any interests in the

appropriate box of ScholarOne Manuscripts during the submission process. This summary statement will be ultimately published if the article is accepted.

Use of inclusive language

Inclusive language acknowledges diversity, conveys respect to all people, is sensitive to differences, and promotes equal opportunities. Content should make no assumptions about the beliefs or commitments of any reader; contain nothing which might imply that one individual is superior to another on the grounds of age, gender, race, ethnicity, culture, sexual orientation, disability or health condition; and use inclusive language throughout. Authors should ensure that writing is free from bias, stereotypes, slang, reference to dominant culture and/or cultural assumptions. We advise to seek gender neutrality by using plural nouns ("clinicians, patients/clients") as default/wherever possible to avoid using "he, she," or "he/she." We recommend avoiding the use of descriptors that refer to personal attributes such as age, gender, race, ethnicity, culture, sexual orientation, disability or health condition unless they are relevant and valid. These guidelines are meant as a point of reference to help identify appropriate language but are by no means exhaustive or definitive.

Reporting Standards: Completeness and the Use of Reporting Guidelines

In an attempt to improve the quality of research reports in the journal, *The Journal of Sexual Medicine* now recommends a completed reporting guideline checklist (see **Appendix B**) is included with an article submission. The purpose of various reporting guidelines is to provide a guide—in the form of a checklist—to authors and editors alike on essential elements that should be included in a paper to ensure all stakeholders can properly validate results and replicate studies. We expect authors to not only use the reporting guidelines to improve the quality of reporting in their submission, but also use the associated guideline checklist to demonstrate the paper does include essential reporting criteria. Ultimately, this task is about improving a manuscript, not filling out a checklist for administrative purposes.

For Reviews and Original Research articles, authors are required to complete one of the reporting checklists listed below. This ensures a higher standard of reporting and will enhance

the prospects of a manuscript being accepted for publication. Authors should upload a completed copy of the reporting checklist(s) with their submission.

STUDY TYPE	STUDY TYPE CATEGORY	CHECKLIST FOR REPORTING STANDARDS	CHECKLIST NAME
Any	—	JSM general manuscript standards	JSM Checklist
Randomized controlled pharmacotherapy trials	RCT (Pharmacotherapy)	CONSORT-Consolidated Standards of Reporting Trials	CONSORT Statement
Other pharmacotherapy and herbal medicinal trials (noninferiority trials, pragmatic trials, cluster trials, reporting of harms)	RCT (Other)	CONSORT extensions (tailored versions of the main CONSORT Statement produced by	CONSORT Checklist
Observational epidemiology studies	Observational Epidemiological Studies	STROBE-Strengthening the reporting of observational studies in epidemiology	STROBE Checklist
Qualitative Research	Qualitative Research	COREQ-Consolidated criteria for reporting qualitative research	COREQ Checklist
Diagnostic Accuracy Studies	Diagnostic Accuracy Studies	STARD-Standards for reporting diagnostic accuracy	STARD Checklist
Systematic reviews	Systematic Reviews	PRISMA (formerly known as QUOROM)-Improving the quality of reports of meta-analyses of randomized controlled trials	PRISMA Checklist
Meta-analyses of controlled trials	Meta-analysis of Controlled Trials	PRISMA (formerly known as QUOROM)-Improving the quality of reports of	PRISMA Checklist

		meta-analyses of randomized controlled trials	
Meta-analyses of observational studies	Meta-Analyses of Observational Studies	MOOSE-Meta-analysis of observational studies in epidemiology	MOOSE Checklist
Quality improvement reports	Quality Improvement Reports	SQUIRE-Standards for quality improvement reporting excellence	SQUIRE Checklist
Erectile Function Recovery analysis following radical pelvic surgery	All relevant studies	ERF-Erectile Function Recovery Checklist	ERF Checklist

STUDY TYPE	**STUDY TYPE CATEGORY**	**CHECKLIST FOR REPORTING STANDARDS**	**CHECKLIST NAME**
Systematic Reviews	Systematic reviews (Pre-registered systematic reviews will be given priority for publication)	PROSPERO (an international database of prospectively registered systematic reviews in health and social care	PROSPERO Animal Studies PROSPERO Human Studies
Pre-Clinical Studies	Animal Studies	Animal Research: Reporting In Vivo Experiments	ARRIVE
JSM Guidelines for Protein Detection and PCR	JSM Guidelines for Protein Detection and PCR	JSM Guidelines + MIQE Checklist	JSM PCR Guidelines and MIQE Checklist
Transgender-Related Research	Transgender-Related Research	JSM Instructions for Authors of Transgender-Related Research	JSM Instructions for Authors of Transgender-Related Research

Article structure

We place **few restrictions on the way in which you prepare your article**, and it is not necessary to try to replicate the layout of the journal in your submission. We ask only that you consider your reviewers by supplying your manuscript in a clear, generic and readable layout, and ensure that all relevant sections are included. Our production process will take care of all aspects of formatting and style.

Please use the Manuscript Submission Checklist (see **Appendix A.1**) along with the info below to ensure that the manuscript has all the information necessary for successful publication.

Title

Abstract

The Journal of Sexual Medicine uses **structured abstracts** to ensure that all essential information is presented. See below for details.

Keywords

Authors should provide **4 to 10 keywords or short phrases** for cross-indexing the article. Terms from the **Medical Subject Headings (MeSH)** list of Index Medicus should be used whenever possible. Try to avoid repeating terms in the Title.

Introduction

State the objectives of the work and provide an adequate background, avoiding a detailed literature survey or a summary of the results.

Materials and Methods

Provide sufficient details to allow the work to be reproduced by an independent researcher. Methods that are already published should be summarized, and indicated by a reference. If quoting directly from a previously published method, use quotation marks and also cite the source. Any modifications to existing methods should also be described.

Results

Results should be clear and concise.

Discussion

This should explore the significance of the results of the work, not repeat them. A combined Results and Discussion section is often appropriate. Avoid extensive citations and discussion of published literature.

Conclusions

The main conclusions of the study may be presented in a short Conclusions section, which may stand alone or form a subsection of a Discussion or Results and Discussion section.

Appendices

If there is more than one appendix, they should be identified as A, B, etc. Formulae and equations in appendices should be given separate numbering: Eq. (A.1), Eq. (A.2), etc.; in a subsequent appendix, Eq. (B.1) and so on. Similarly for tables and figures: Table A.1; Fig. A.1, etc.

Structured abstract

The Journal of Sexual Medicine has changed the format of its abstract in an effort to permit the reader to glean a greater degree of understanding of the research by simply reading the abstract without reading the full manuscript. The aim is to expand the *Methods* and *Results* sections to facilitate a more meaningful interpretation of the research. The length of the abstract will be extended to **400 words**.

Clinical papers will have the following headers (with suggested lengths):
Background (one sentence)
Aim (one sentence)
Methods
Outcomes (one sentence)
Results
Clinical Implications (one sentence)
Strengths & Limitations
Conclusion (one sentence)

Figure captions

Ensure that each illustration has an **adjacent caption**. A caption should comprise a brief title (**not** on the figure itself) and a description of the illustration. Keep text in the illustrations themselves to a minimum but explain all symbols and abbreviations used.

References

Please ensure that every reference cited in the text is also present in the reference list (and vice versa). Any references cited in the abstract must be given in full. Unpublished results and personal communications are not recommended in the reference list, but may be mentioned in the text. If these references are included in the reference list they should follow the standard reference style of the journal and should include a substitution of the publication date with either 'Unpublished results' or 'Personal communication'. Citation of a reference as 'in press' implies that the item has been accepted for publication.
References should be **listed in the order in which they are first cited in the text**. The references should conform to the Index Medicus style, omitting number and day of month of issue. See a recent issue of the journal for examples of reference formats.

This information was taken from the website:

https://www.jsm.jsexmed.org/content/authorinfo#idp1417248

APPENDIX A.1

JSM General Manuscript Standards Checklist

Please complete the following steps to ensure the correct submission of your manuscript:

1. Upload a title page for your manuscript that is separate from the rest of the main document. The Title Page should include the following information:

- Full author names and the highest qualifications (PhD, MD, etc.) for all authors
- Institution, city, and country details for each author
- Email address of corresponding author.

2. Please upload the main manuscript as a Word document **without** identifying author information. Please include:

- Continuous line numbering
- An abstract and 4–10 keywords
- Text (Introduction, Materials and Methods, Results, Discussion, Conclusions)
- Literature cited
- Tables (each table should have a legend on the same page)
- Figures (each figure should have a legend on the same page)

3. Abstracts for Original Research articles must be structured as follows: Background (one sentence), Aim (one sentence), Methods, Outcomes (one sentence), Results, Clinical Implications (one sentence), Strengths & Limitations, Conclusion (one sentence).

4. Please pay attention to the quality of all figures and artwork supplied. For best results:

- Generate all graphs in professional software (e.g. R) and save these directly in vector format (.pdf or .eps). Images in vector format are always sharp no matter how far you zoom in
- Photographs should be at least 5 inches (12 cm) in length and width, and saved as .tiff files with a minimum resolution of 500dpi.

APPENDIX B

Reporting guidelines – SANRA (Scale for the Assessment of Narrative Review Articles)

Item 1 – Justification of the article's importance for the readership

Pages 2 and 3: "Female sexual function can be affected by several psychological, social and clinical conditions leading to negative effects on interpersonal and social relationships, and on the well-being and quality of life in women. Although its importance throughout women lifespan, the discussion with the physician is limited partially due to limited time for medical appointments and perceived taboos, and because most professionals lack sexuality competences (…) few protocols are available for the discussion and management of organic and non-organic sexual complaints at the medical office"

Item 2 – Statement of concrete/specific aims or formulation of questions

Page 3: "The purpose of this narrative review is to describe the theoretical models that explain the female sexual response, to present clinical definitions of sexual dysfunctions in women by Diagnostic and Statistical Manual of Mental Disorders 5th Edition (DSM-5) and discuss the evolution from older DSM-IV-TR designations and finally to introduce and discuss several clinical approaches to each sexual dysfunction. Another intention of this work is to provide brief information for easy and quick reading accessible to all interested, expecting that can shorten the gap between the physician and its patient, and eventually help many women to have a more happy and fulfilled sexual life."

Item 3 – Description of the literature search

Page 3:

Sources of information, databases and date searched: "(…) written based on two central sources of information: a textbook from the European Society for Sexual Medicine, (…) and the DSM-5 Manual. Additional literature research was conducted in MEDLINE database during the month of October, 2020. "

Search terms: "female sexual desire", "female orgasm model", "human sexual response" and "sexual response cycle".

Inclusion criteria and types of literature included: "Original articles and narrative reviews whose focus is the woman were included; the ones whose focus is the man or both man and woman were excluded. The articles and reviews' title should have at least one of the terms: female sexual response/arousal, sexual models, response cycle, sexual function/dysfunctions, desire/arousal disorder or clinical management."

Exclusion criteria: "(…) inappropriate topics (neuroanatomy and function of human sexual behavior, brain imaging during sexual response cycle, anatomy of the vulva/genital anatomy, hormonal therapy) and opinion articles."

Item 4 - Referencing

Key statements (some examples of):

Page 4: "Masters and Johnson were the first researchers to (…) suggest a model in their original book named "Human sexual response" published in 1966 (…) characterized the response as a continuous linear process characterized by four stages: Excitement (E), Plateau (P), Orgasm (O) and Resolution (R) (7)."

Page 6: "A circular sexual response pattern was first described by Whipple and Brash-McGreer (7). (…) unpleasant or forced sexual experiments can lead to losing interest and desire for sexual activity (4, 7, 8)."

"The previous linear models assumed spontaneous sexual desire but Basson's model features a responsive form of desire, obtained once sexual arousal is achieved and includes mental and physical variables, which traduces a more complete yet complex response (3)."

Page 8: "One important finding is the poor correlation that female genital engorgement with subjective arousal have in response to sexual stimulation, contrastingly with what happens in men (genital congestion – erection – as a consequence of subjective arousal) (8)."

"In the DSM-5 three female sexual disorders are described: Female Orgasmic Disorder, Female Desire/Interest Disorder and Female Genito-Pelvic Pain/Penetration Disorder (11)."

Page 11: "Sexual desire/interest disorder can be characterized as being lifelong or acquired, and generalized or situational, in the same way as in FOD (7, 11)."

Page 13: "The most common complaint is low libido, followed by problems with arousal and lastly pain disorders (6, 7)."

Page 16: "Sensate focus in sex therapy was first described by Masters and Johnson; it emphasizes on sensate focus exercises, sexuality education and partner communication skills (7, 12, 13)."

Page 18: "The gold-standard treatment for women experiencing orgasm problems (after excluding a biological etiology) is CBT, where the focus is the empowerment to reach orgasm as desired under any circumstance (7). "

Page 19: "For postmenopausal women, testosterone in combination with estrogen or tibolone can be considered (7)."

Page 21: "Pelvic floor muscles are a muscular group that include anus lifter muscles and the ischiococcygeus muscles and have a relevant function in maintaining urinary and fecal continence, as well as taking part in sexual intercourse and delivery (2, 7)."

Page 22: "Vaginismus make differential diagnosis with dyspareunia, since it is another form of genital pain (1)."

Item 5 – Scientific reasoning

Page 4: "(…) suggest a model in their original book named "Human sexual response" published in 1966 (…)"

Page 14: "Epidemiologic studies referred by Kammerer-Doak, et al (6) assessed the effects (…)"

Page 15: "Lara, et al (2) describe the TOP model in their original article as a tool (…)"

No levels of evidence available.

Item 6 – Appropriate presentation of data

Non applicable, since the majority of observational and epidemiologic studies available (some of which presented here) use the sexual dysfunctions' diagnostic criteria from DSM-IV-TR and not the most recent criteria and designations from DSM-5. This work was written based on DSM-5 (2013).