

# Sexual health and sexual ecology







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VI Forum

9 May 2015, Milan

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# Presentation

## **Silvia Misiti**

Head of IBSA Foundation for Scientific Research

## **Giuseppe Zizzo**

Secretary of IBSA Foundation for Scientific Research

The Forum “Sexual health and sexual ecology”, promoted by IBSA Foundation for Scientific Research, was organized in collaboration with Dr. Andrea Salonia, Director of URI-Urological Research Institute at San Raffaele Hospital in Milan.

This Forum has allowed us to deepen and to talk about the concept of *sexual ecology* – not so known to general public – whose definition from the scientific standpoint has consistently contributed Dr. Salonia over the last years.

Due to the extremely complex and challenging nature of sexual ecology, several professionals need to be involved in its study in order to get a proper understanding of the whole topic. In fact, sexuality and sexual ecology represent a multifaceted reality in which psychology, medicine and sociology are closely intertwined.

Men and women have become increasingly pressing a compelling in their expressions of sexual distress, which can be neither underestimated nor ignored. Medical and psychological research have made consistent attempts over the last decades to properly respond to these patient requests, as testified by the several drugs approved for erectile dysfunction (e.g., 5-PDE5-i) or premature ejaculation, as well as by the advances in terms of knowledge of the underlying psychological substrates related to sexual responses. However, the issue is far from being solved, since a gender gap still exists, largely disadvantaging women.

During this forum each invited guest aimed to help unravel the several hidden and often neglected aspects of sexual ecology focusing on her/his area of interest.





# Introduction

**Andrea Salonia**

Director of URI-Urological Research Institute, San Raffaele Hospital, Milan

The idea behind this Forum was to spend a day completely devoted to Sexual Medicine, spanning several topics from sexual health to sexual ecology. *Sexual ecology* is a new concept which encompasses the overall evaluation of sexuality starting with the mind, moving to the body and eventually to society, which has become more important than ever. As a whole, *sexual ecology* emerges as a broad and far-ranging idea which must be addressed from several different points of view.

In order to achieve such an ambitious goal, several experts were invited to this Forum to convey a compelling picture of the general state of the art and possible future perspectives in this field. Professors James Pfaus (Professor of Psychology at the Concordia University in Montreal, Canada) and Pedro Nobre (Professor and Director of the Laboratory for Research in Human Sexuality – SexLab – at Porto University, Portugal, and current Chairman of the scientific committee at WAS) addressed, respectively, the bio-neurological issue related to the behavioral aspect of *sexual ecology* and the psycho-clinical correlates of *sexual ecology*, covering the “mind dimension” of both *sexual ecology* and sexuality overall.

Moving to the “body dimension” Prof. Mario Maggi (Full Professor of Endocrinology at the University of Florence, Italy) provided an insightful portrait of *sexual ecology* in men thanks to his tremendous experience and authority in the field as an endocrinologist of male sexual function, whereas Prof. Rossella Nappi mirrored this task in women, focusing on both female general and sexual health.

Prof. Luca Incrocci (Professor of Genito-Urinary Radiotherapy at Erasmus MC Cancer Institute, Rotterdam, The Netherlands) addressed the delicate issue of sexuality in cancer patients, considering sexuality as a major factor in determining quality of life even in patients who have been diagnosed and treated for cancer. Similarly, Prof. Johannes Bitzer (Full Professor of Obstetrics and Gynecology at the University

Hospital of Basel, Switzerland) discussed the issue of sexuality in another challenging category of patients, i.e. the elderly.

Finally, considering society, Prof. Alain Giami (Research Professor at INSERM – Institut National de la Santé et de la Recherche Médicale) and Dr. Jasmine Abdulkadir (Consultant at the Department of Reproductive Health and Research, World Health Organization, Geneva, Switzerland) comprehensively contextualized *sexual ecology* in its “social dimension”. More precisely, Prof. Giami focused on sexual health as a human right, whereas Dr. Abdulkadir shared her knowledge and experience in terms of female genital mutilation.

## SESSION 1

SEXUAL HEALTH IS IN YOUR MIND



# Sexuality and pleasure are phylogenetically linked and conserved

James G. Pfaus

Center for Studies in Behavioral Neurobiology, Department of Psychology, Concordia University, Montréal, QC, Canada

Many studies challenge the idea that sex is only about reproduction. Of course reproduction is one master. As suggested by M. T. Ghiselin, “we have evolved a nervous system that acts in the interest of our gonads, and one attuned to the demands of reproductive competition” [1].

On the other hand, Richard von Krafft-Ebing stated in 1886 that “erotic fetishism makes an idol of physical or mental qualities of a person or even merely of objects... because they awaken mighty associations with... sexual pleasure” [2], meaning thus that sex can serve reward and pleasure. Data from animal studies may help to overcome this duality of reproduction vs. pleasure.

To date, animal and human sexual behavior has been studied with an eye to two different systems. It is often assumed that in animals sexual behavior is reflexive whereas in humans it is more than that, involving more cognitive assessments of expectancy and reward. Thus the *reflexive system* is related to:

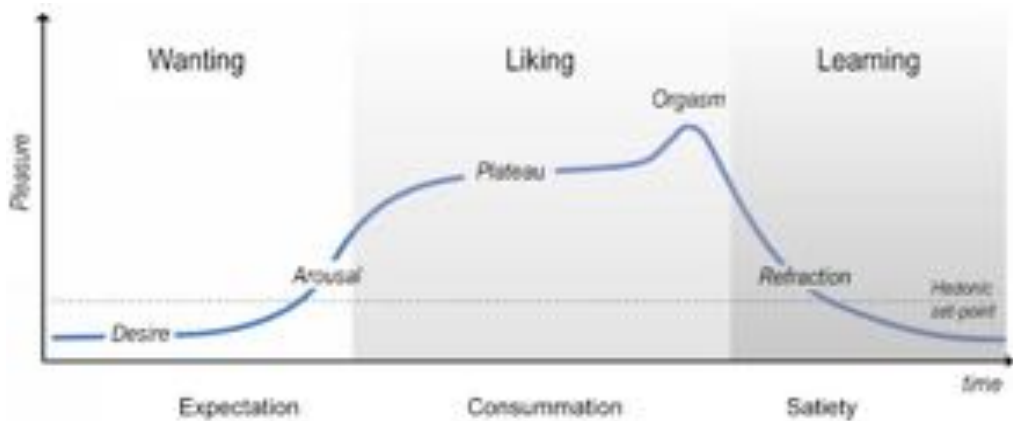
- autonomic activation, genital reflexes and sensations, innate copulatory behaviors, and involves “lower” structure from the central nervous system such as the hypothalamus, brainstem, spinal cord. This aspect closely characterizes animals, which have sex as a function of their hormones and their reproductive cycles.

In contrast human sexual behavior seems to involve an *incentive system* related to:

- pavlovian associations between sexual stimuli and reward or punishment beside several associations between behavior and reward or punishment. In this case limbic and cortical structures that interact with specific hypothalamic nuclei are involved.

According to the modified Masters and Johnson’s (1966) EPOR Model [2] (• **Figure 1**), the sexual response cycle in humans is terminated by a refractory phase during which learning occurs that allows for associations to be made between external

- **Figure 1.** Masters and Johnson's (1966) EPOR Model modified by Kaplan (1974) and Georgiadis, Kringelbach



Source: Georgiadis, Kringelbach, 2012 [2].

cues and the pleasure state. Does this occur in animals? The role of learning in animals may be hypothesized in selected behaviors ranging from mate recognition, sexual partner preferences, courtship behavior, and selective copulatory behaviors. One way to have this question tested experimentally is provided by the sexually-conditioned place and partner preference.

Conditioned place preference (CPP) tests the preference demonstrated by laboratory animal towards a specific place in which the animal experiences reward (which might be a drug or as in this case sexual pleasure). Ejaculation is fundamental for sexually-conditioned place preference in male animals, along with more arousal prior to ejaculation.

Conversely, the acquisition is blocked by the opioid receptor antagonist drug naloxone, but is not blocked by dopamine antagonists. This last point is of major importance because dopamine antagonists block the expectation of reward but not the reward itself, which is instead opioid-mediated. For females reward is experience in their ability to control, or pace, the initiation and rate of copulation. This reward state can also be induced by timed clitoral stimulation, suggesting that the rate of clitoral stimulation is what female rats find rewarding. As with males, naloxone blocks this response whereas dopamine antagonists do not. Thus, opioids in both female and male brains provide the neurochemical input for sexual reward.

A step forward occurs when male or female rats have their first copulatory experiences with partners scented with a neutral odor (such as almond or lemon) or no odor.

On a final test, the experimental animals are given an open choice to copulate with two partners, one scented and the other unscented, in a large open field. Rats are assumed to be promiscuous, yet males that had their first sexual experiences with scented females chose to ejaculate preferentially with scented females on the final open field test, despite both females being fully sexually receptive. Similarly, males that copulated with unscented females during training showed a weaker, but still significant, preference to ejaculate more with unscented females during the final open field test. As with CPP, ejaculation during conditioning emerged as a fundamental reward state during training.

What is the mechanism underlying this process and what is its biological meaning? The conditioned odor alone acts as a priming cue, and we have shown that it activates Fos (a nuclear protein indicative of neuronal activation) in the hypothalamic medial pre-optic area, the paraventricular and supraoptic nuclei, the ventral tegmental area, the septum, the insula, the anterior cingulate, and the piriform cortex (regions activated in humans when seeing sexual/erotic circumstances that they find arousing and associated with reward processing). The odor also activates dopamine release from the nucleus accumbens, oxytocin and vasopressin neurons in the paraventricular and supraoptic nuclei, and activates GnRH neurons, thus increasing thus plasma testosterone levels.

The implications here are that the odor as a conditioned stimulus activates regions of the brain associated with reward, bonding, attention, and reproduction. Indeed, treatment with oxytocin before a male's first sexual experience with a scented female to ejaculation, enhances the development of conditioned partner preference.

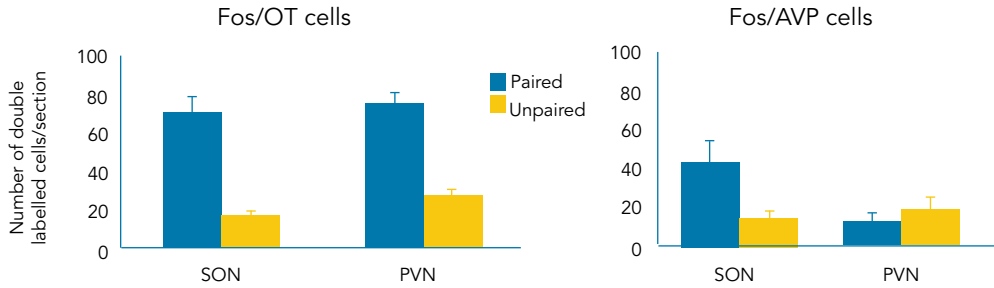
Charles Darwin suggested that females are the more "choosy" of the sexes. Indeed, given the amount of metabolic resources that must be devoted to the generation and maintenance of offspring, their choice of partner for their offspring should be based on the best characteristics of strength.

However, conditioning studies in rats show that this choice is based on more proximate features of a partner that are related to the female's own experience with sexual reward. When assessing conditioned partner preferences in females, the female chooses to solicit and mate preferentially with the male possessing the scent indicative of her first experiences with mating and sexual reward. Indeed, female rats do not need an odor. They will form preferences for males based on the males' pheromonal makeup. These females will show mate-guarding behavior when their preferred partners are solicited by a novel female.

Mate-guarding is a strong index of monogamous mating [3]. Fos expression was examined in both the partnered and competitor females after the final open field test. Partnered females had significantly higher expression within the supraoptic nucleus and paraventricular nucleus (regions of the brain associated with bonding and learning) as compared to partnered females that did not develop this behavior or competitor females. As with males, significantly more Fos was expressed within oxytocin and vasopressin neurons (• [Figure 2](#)).



• **Figure 2.** Oxytocin and vasopressin expression in supraoptic nucleus and paraventricular nucleus



OT: oxytocin; AVP: vasopressin; SON: supraoptic nucleus; PVN: paraventricular nucleus.

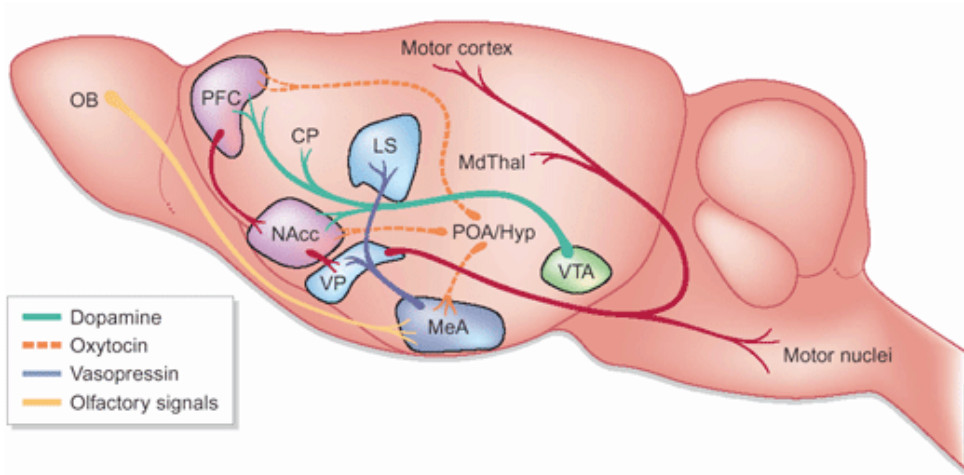
Peripheral administration of oxytocin or vasopressin prior to the female rats' first sexual experience with the familiar male facilitated different aspects of mate-guarding: oxytocin augmented affiliative behaviors and presenting responses whereas vasopressin augmented interference behavior [4]. More interestingly, when inhibiting lysine specific demethylase in the female rats' brain (thus preventing new gene expression) all mate-guarding behaviors were abolished, as were the activation of oxytocin and vasopressin neurons. What emerges is that first experiences with sexual pleasure change the brain epigenetically, in this case turning rats from promiscuous to monogamous.

Finally, as with males, naloxone disrupts the formation of sexually conditioned partner preferences in females. Blocking opioid reward with naloxone blocks this process and shifts the female's preference from familiar to novel. Thus, the experience of sexual reward leads to the unpacking of genes related to dopamine, oxytocin, and vasopressin expression. These data have important implications for the development of sexual and partner preferences, paraphilias, and drug addiction.

• **Figure 3** displays a circuit diagram indicating how pathways for sexual reward and incentive responding overlap with pathways for bonding.

Perhaps all species on this planet have sex for pleasure most of the time. Mating can occur – or not – with a bit of luck in a mating context, but mating is not the critical factor. Desire for whom an individual mates with can work hand-in-hand with the desire for sex. Such sexual bonding, even for a short time, requires conditioning and expectation to produce effective appetitive responses.

- **Figure 3.** Pathways for sexual reward and incentive responding overlap with pathways for bonding



Source: Young, Wang, 2004 [5].

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# The mind, the body, and sexual response: what determines sexual health?

**Pedro Nobre**

Sexlab, Faculty of Psychology and Educational Sciences, Porto University, Portugal

Sexual response is something simultaneously related to the body and the subjectiveness. Masters and Johnson described several aspects related to sexual response in men and women, focusing on physiological correlates of sexual arousal. Several other researchers gave a valuable contribution at this regard. David Barlow started researching about the intercorrelations between emotions, cognitive process and sexual response at the same time. Even “new generation” researcher such as Erick Janssen, Ellen Laan, and Cindy Meston gave an important contribution with their research conducted on men and women.

The Sexlab’s research (<http://www.fpce.up.pt/sexlab/>) is conducted employing several instruments, including for instance the vaginal photoplethismograph, which assesses vaginal pulse amplitude (VPA, high in case of physiological sexual arousal) and vaginal blood volume (VBV). Considering the male counterpart, changes in penile circumference are recorded. Another interesting measuring tool is the eyetracker, which gives hint of what the visual attention of the analyzed subject is during the projection of a sexual film. This is of importance, since the information from the eyetracker is analyzed together with that related to sexual arousal of the subject during the film, telling us whether the people are looking more at the sexual stimulus or are distracted by their own supposed sexual response. This is valuable information in terms of concordance between genital arousal and subjective arousal.

Since the 80’s, laboratorial studies have systematically reported discrepancies between physiological and subjective indicators of female sexual arousal [1-3]. In men the concordance between these factors seems higher than what observed in women. A recent review of the literature found a significant correlation though not so impressive from the statistical standpoint [4], leaving room for discordance in men too.

As a matter of fact, a recent study by our group published in the “Journal of Sexual

Medicine” [5] found discrepancy also among men (penile tumescence *vs* subjective arousal -  $r = .27, p > .05$ ).

Where does this separation arise from? Are mind and body separated? Clinical studies suggest that women asking for help related to sexual issues mostly complain about low desire (compared to the level they would like to have or they had in the past), lack of pleasure/orgasm; in most cases lubrication problems are scarce. At this regard, DSM-5 proposed a new category in women merging desire and arousal (interest/desire disorder) and excluding lubrication from the criteria (the only “physiological” criteria, which used to be a main criteria for sexual arousal disorder in women). Contrary to DSM-IV arousal markers are now exclusively subjective. Conversely, when considering men, the new DSM-5 maintains criteria for erectile disorder, which is exclusively dependent of genital markers (erection) with no subjective dimensions (lack of pleasure).

Consistent with these diagnostic differences, our group performed a study [6] aiming to compare different models of male and female sexual functioning. Considering men, the model explaining sexual functioning in men without sexual difficulties differs from the one fitting in men with difficulties: in the first group, the desire domain is independent from the erectile and the orgasmic ones, whereas these two belongs to the same dimension. Premature ejaculation remained independent from other examined domains. When considering men with sexual difficulties, desire, erection, and orgasm came to be closely related. Desire therefore emerged independent of erectile function in sexually healthy men but not in men with sexual difficulties, suggesting that the overlap may result from a functional link between sexual desire and erectile disorders (• [Figure 1](#)).

In women [7], the examined domains appeared to be rather independent from each other. More specifically, findings suggested a four-factor solution as the best fit to the data in women with sexual difficulties including:

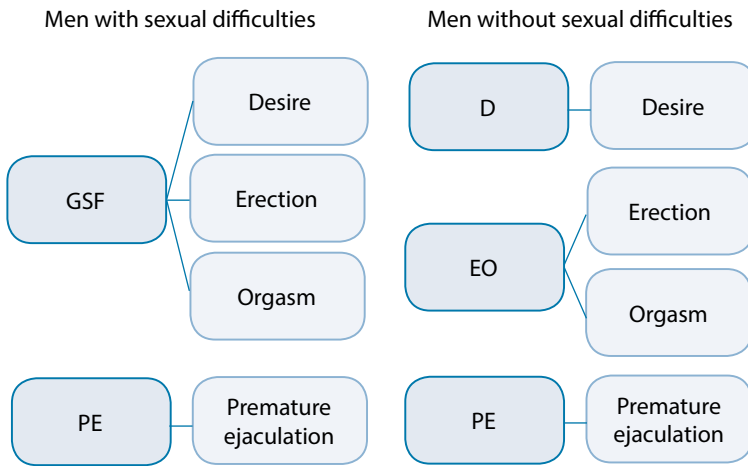
1. desire/arousal;
2. lubrication;
3. orgasm;
4. pain/vaginismus.

In relation to sexually healthy women, the best model was a five-factor solution with:

1. desire;
2. arousal;
3. lubrication;
4. orgasm;
5. pain/vaginismus.

The only two factors grouped in one subdomain appeared to be pain and vaginismus. It thus appears that when dealing with women with sexual difficulties, desire and

• **Figure 1** . Best model of sexual functioning fitting in men



Source: Carvalho *et al.*, 2011 [6].

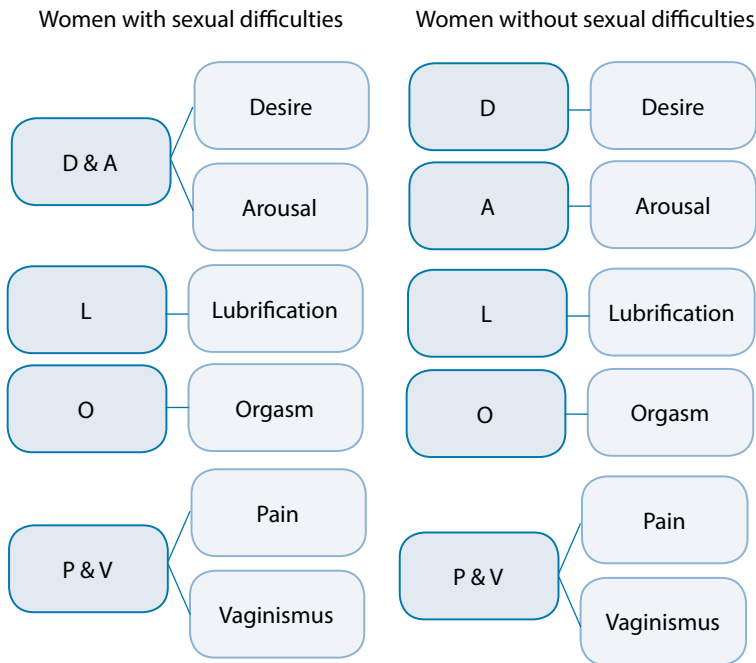
subjective arousal go together as suggested by the DSM-5. Consistent with this, lubrication (and thus physiological components) emerged as a different condition from desire and other analyzed conditions (• **Figure 2**).

At this regard, a recent study focused on predictors of physiological and subjective arousal [8]. The investigators evaluated self-reported cognitions and emotions during exposure to sexual stimuli in the laboratory, some of them related to erotic thoughts and others related to distractive/negative thoughts. If subjects were distracted, and the associate condition was therefore negative, that would have had a major impact on sexual response and vice versa. According to the performed regression analysis, erotic thoughts predicted subjective sexual arousal in sexual healthy women; in particular, positive emotions during the exposure predicted subjective female sexual arousal. Interestingly, when looking for predictors of physiological arousal in women, cognitions (neither erotic nor distractive/negative thoughts) during exposure did not predict genital arousal in women.

In men very similar patterns were observed [5]. Erotic thoughts were undoubtedly the best predictors of subjective arousal in men, with positive emotions playing a major role. Differently from women, when looking at predictors of physiological arousal, emotions did not predict physiological sexual arousal, whereas distractive thoughts were negative predictors of physiological sexual arousal.

This is of great importance in terms of cognitive behavioral therapy, whose main goal is to “change cognition”, doing so by changing emotions and therefore leading to

• **Figure 2 .** Best model of sexual functioning fitting in women



Source: Carvalho et al., 2012 [7].

changing in behaviors (and ultimately sexual response). On the other hand lies mindfulness, whose main goal is not related to changing cognition but to be aware of the moment: being aware of a pleasurable moment may enhance positive emotions and sexual thoughts.

Challenging these ideas with rigorous clinical studies will provide further insights at this regard.

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# Sexuality is still important in the elderly

**Johannes Bitzer**

Department Obstetrics and Gynecology, University Hospital Basel,  
Basel Institute of Sexual Medicine/Sexual Therapy, Switzerland

Published evidences seem to suggest how there is no upper age limit for sexual activity [1, 2]. Beside this, sexual activity shows an age dependent decline on average, but with a large variance [3]; this decline seems to start at the age 30 and is accentuated around the age 50 in both genders [4, 5], probably in women more than in men. On the other side, sexual dysfunctions increase with age, once again with a large variance [4]. From the epidemiological standpoint, the most frequent dysfunctions in men are erectile dysfunction and primary ejaculation, followed by low desire. Women more frequently complain of a combined disorder of desire and arousal, followed by pain disorder. While it is quite glaring that age brings changes, it is fundamental to understand how important these changes are for the elderly people and how often these people seek specific help.

What emerges from published studies, is that aging people experience more sexual dysfunctions but are less distressed by them [6, 7]. Beside this, these people rarely seek professional help, whatever the gender is.

Our clinical approach focuses on the several peculiarities that elderly people and couple might display. If on one hand the physical issue (physical and psychological comorbidities) is taken into account, on the other the communication in the consultation is deemed as fundamental. This last point is related to the feeling of shame that elderly couple experience related to the opportunity of having sex and its related social stigma. Moreover, there is a very high degree of inter-individual variation, with no typical model of elderly person with sexual problems.

Society usually deals with this issue according to four different approaches.

- *The flaccid penis and dry vagina discourse*, related to the physical sphere; this is clearly the medical perspective. As a matter of fact, PDE5 inhibitors and drugs employed after menopause enhanced this field during last years.

- *The gentle post-passion sensual sex discourse*, focused on changing sexual needs and finding a new definition of sexuality; this might be referred to as rehabilitation perspective.
- *The fulfillment of sex at older age discourse*, with a focus on self-experience which gains a major importance in older age helping couple development, partner validated and self validated identity and intimacy; this is the sex therapy perspective.
- *The rejuvenation by younger partners*, related to the improved in sexual pleasure that both male and female may experience with a younger partner.

In these ageing couples, the degree of discrepancy between sexual needs/wishes and sexual reality lies behind the complained distress and suffering. Moreover, our so-called “inner comparator”, which prompts an unconscious comparison between previous experiences of pleasure, previous level of function, sexual ideal, or even partner’s wishes, promotes distress in the elderly.

Focusing on the biopsychosocial model in the sexological care of the elderly individual and couple is of key importance (• **Figure 1**). The three components of this model are represented by the female (*axis 1*) and the male (*axis 2*) counterpart with their social-biological-psychological characteristics, and the pattern of communication and interaction (couple dynamics, *axis 3*); behind this acts a continuous timeline with predisposing, precipitating and maintaining factors.

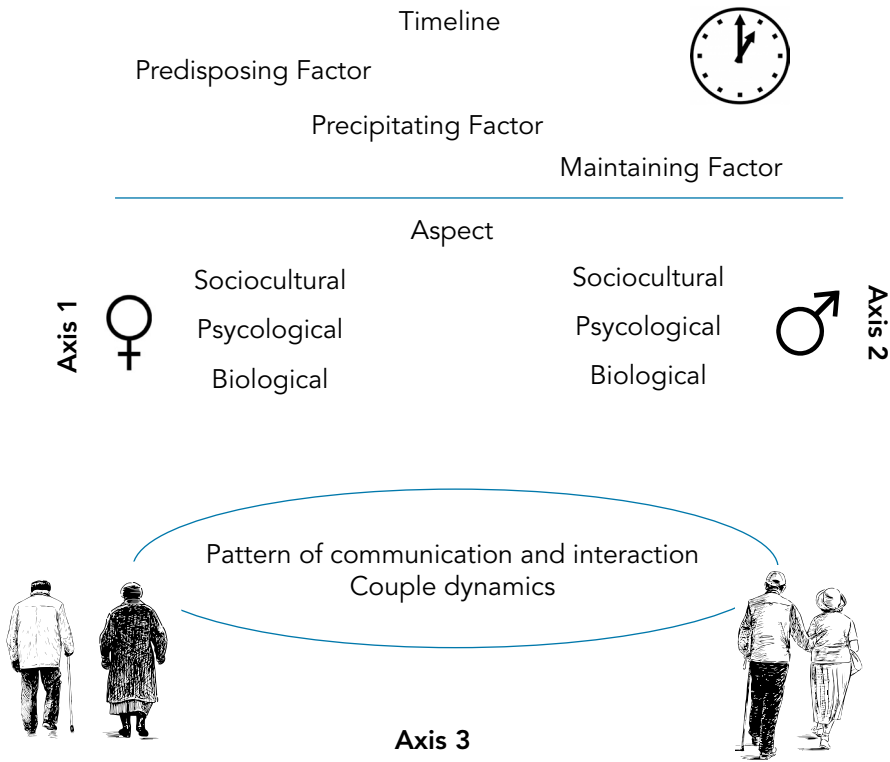
Considering axis 1, the elderly woman is characterized by several well known intervening biological aspects such as postmenopause oestrogen/androgen-deficiency, cardiovascular diseases, depression and anxiety disease, obesity and metabolic syndrome, as well as psychological (negative expectations, performance anxiety, negative stories of separation/trauma, loss of self esteem, loss of autonomy) or sociocultural aspects (the male dominated model of sexuality, lack of learning possibilities, norms and education).

Similarly, the elderly man (*axis 2*) might be affected by biomedical (cardiovascular disease, prostatic disease, brain disease, diabetes, obesity, musculoskeletal disorders), psychological, and sociocultural (myths about male sexuality, men always want and can have sex, performance and function oriented ideal, fixation on the standard model of sex) aspects.

One more characteristics to be considered in the elderly couple is medication use. Several drugs may impact on sexuality, for instance anticholinergics can have an effect on mucosal membranes, anti-hypertensive drugs (thiazid diuretics, calcium antagonists, ACE inhibitors) may reduce blood flow to the genitalia, and several other drugs are known to interact with the hormonal homeostasis and the central nervous system.

When considering couple dynamics (*axis 3*), it is paramount to understand how there are always two individuals with wishes, fears, temperament, potencies, and valencies in balance between centripetal (bonding, trust, affiliation stability) and centrifugal factors (autonomy, freedom, independence, change). Introspection and communication between the couple influence this balance.

● **Figure 1.** The biopsychosocial model in the sexological care of the elderly individual and couple



Along with this, there are several risk factors (e.g. habituation, routine, loss of attraction, fear of instability, conflict, differences in temperament, third party involvement and jealousy, conflict about values, collusions, and communication disorder) and resources (e.g. intimacy, experience, shared life story, sympathy, solidarity, diminution of stress of performance and competition, patience, and compensatory activities). It is important in sexual medicine to consider not only deficits, but to focus on resources too.

Therefore, when dealing with the diagnostic workup of the elderly couple one must investigate what is the desired sexuality versus the real sexuality, considering general sexual components and other effects on self esteem, identity, and relationship; beside this, biomedical, sociocultural, and psychological aspects need always to be considered along with couple dynamics.

Regarding the motivation for treatment it is important to find out what expectations of the couple look like, the possible advantages of the actual situation, the be-

nefit and risk if the sexual problem disappears. This clarification may help to replace exceedingly ambitious objectives by stepwise approaches, considering thus rehabilitation instead of therapy.

Generally speaking, the patients may thus be divided into 4 groups, each one focusing on:

- potentially reversible loss of function (erectile dysfunction, premature ejaculation, new onset pain, arousal disorder), expecting restoration of previous function often by means of medication;
- irreversible loss of function (e.g. following surgery for prostate or breast cancer), where the treatment objective is rehabilitation using sex therapy elements like sensate focus including sex toys and devices;
- insecurity and anxieties about meaning and change of inner needs. These couples need mainly psycho-education and sexual counselling;
- discrepancy in sexual development and conflicts in needs where couple therapy is indicated.

It follows that the therapeutic plan must be individualized carefully weighting and considering impact of aging on sexuality, risk and disadvantages, resources and advantages, information about other people's experiences, and gender differences; all this may be summoned up in basic counselling, information, education. Several myths at this regard have to be corrected during therapeutic intervention, such as the fact that sex must be spontaneous, sex must always end in intercourse, men want always sex, women want never sex, sex is for young bodies only; at this regard, men and women have to understand that sex toys are not only for perverts, but can help to reactivate couple sex life instead.

The general spectrum of interventions applied in sexual medicine can be made available for elderly couples:

- biomedical interventions (e.g. PDE5 inhibitors, testosterone replacement therapy for both sexes, systemic and local hormone therapy for women);
- modified sex therapy including bibliotherapy (books, sex toys, videos, sensate focus, and body awareness exercises including masturbation); and
- couple therapy (creating awareness of blockages and destructive interventions, communication training, conflict analysis and solution strategies).

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## SESSION 2

SEXUAL HEALTH IS IN YOUR BODY





# Sexuality is female

**Rossella E. Nappi**

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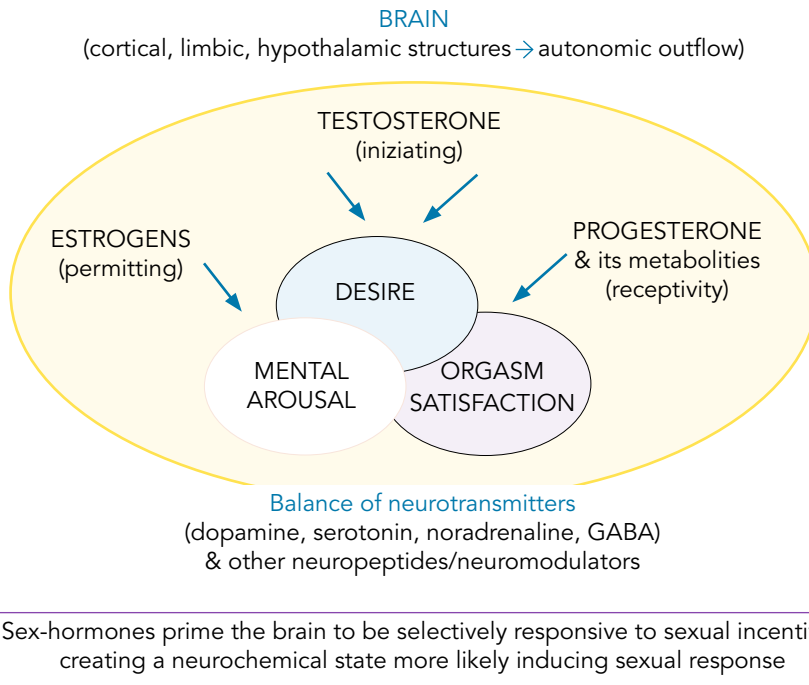
The unique nature of intrinsic and extrinsic factors influencing women's sexuality across the lifespan limits our ability to discriminate between biological/organic components and psychological and contextual determinants of sexual response and behaviour and to find effective pharmacotherapy for sexual symptoms. Beside this, the hormonal milieu is the major driver of women's sexual functioning as evidenced by major reproductive milestones (menarche, pregnancy, menopause) and endocrine manipulations (e.g., hormonal contraception, hormonal chemotherapies, other hormonal therapies), which are associated with significant variations of sexual response at multiple levels (central nervous system, uro-genital organs).

In this context, a multidisciplinary approach is fundamental since inter-individual differences and intra-individual changes in sexual function and behaviour are variable and unpredictable and the use of objective measures of sexual response does not reflect the subjective experience of women. It is, then, mandatory to expand the field of research in female sexual dysfunction (FSD), taking into account the bio-psychosocial model, which combines an optimal assessment of endocrine/organic aspects of the sexual response in women with the intrapersonal and interpersonal clues during the lifespan, in order to establish a multidimensional, tailored treatment plan.

From the epidemiological standpoint, US data [1] show how roughly one out of ten women complains of any kind of sexual dysfunction; unfortunately, FSD is still an unmet clinical condition. This is not the result of gender inequality in sexual medicine, but it reflects the need of balancing benefits and risks in order to provide effective and safe treatments to women of any age.

Sexuality in women is multifactorial, encompassing the genetic background, interpersonal factors, hormones, and several other factors. As shown in • **Figure 1**,

● **Figure 1.** Neuroendocrine response and sexual function



Source: Nappi, Domoney, 2013 [2].

oestrogens, testosterone and progesterone prime the brain to be selectively responsive to sexual incentives creating a neurochemical state more likely inducing sexual response. Women’s hormonal balance keeps on changing not only day by day during menstrual cycle, but also during the entire lifespan from puberty up to menopause with all the possible consequences in terms of sexual desire, arousal, and satisfaction. Sex hormones mediated effects extend beyond central nervous system, influencing genital organs as well; these structures express hormones receptors in a differential way according to the menstrual cycle, mainly receiving a trophic stimulus.

Female sexual response is definitely influenced by so many factors combined in the so called “body-mind connection”, deserving thus a thorough approach in case of any possible dysfunction.

Another factor worth mentioning is the relationship between genetics and epigenetics acting in female sexual health. Recently, Andrea Burri found out how genetics seems to account for 30% of sexual health biology, leaving the remnant for the environment [3].

Several models explaining female sexual functioning were proposed during the last decades, ranging from Masters and Johnson's one (1966) focused on female genital response up to Basson's model (2001) claiming that intimacy for women is much more important than genital/mental arousal. What emerges from published data is a heterogeneous situation: women with FSDs seem to endorse the Basson model (based on intimacy), whereas functional women are more likely to endorse those models with a consistent organic/biological basis [4]. Notably, a consistent share of women does not fit any model at all. Consistent with this, Bancroft and Graham [5] highlighted a great variability of women's sexual expression. If sexuality (and sexual desire) is undoubtedly related to reproductive function, on the other hand sexual pleasure plays an important role. Sexual pleasure is a super-added value that is able to drive sexual desire regardless reproductive needs in women and it may be the result of a peculiar power of women within sexual relationship. Such power relies on their ability to attract a specific man and being desired by him, without losing the possibility to control sexual interactions. Therefore, sexual satisfaction not always is linked to sexual pleasure/orgasmic reflex [5].

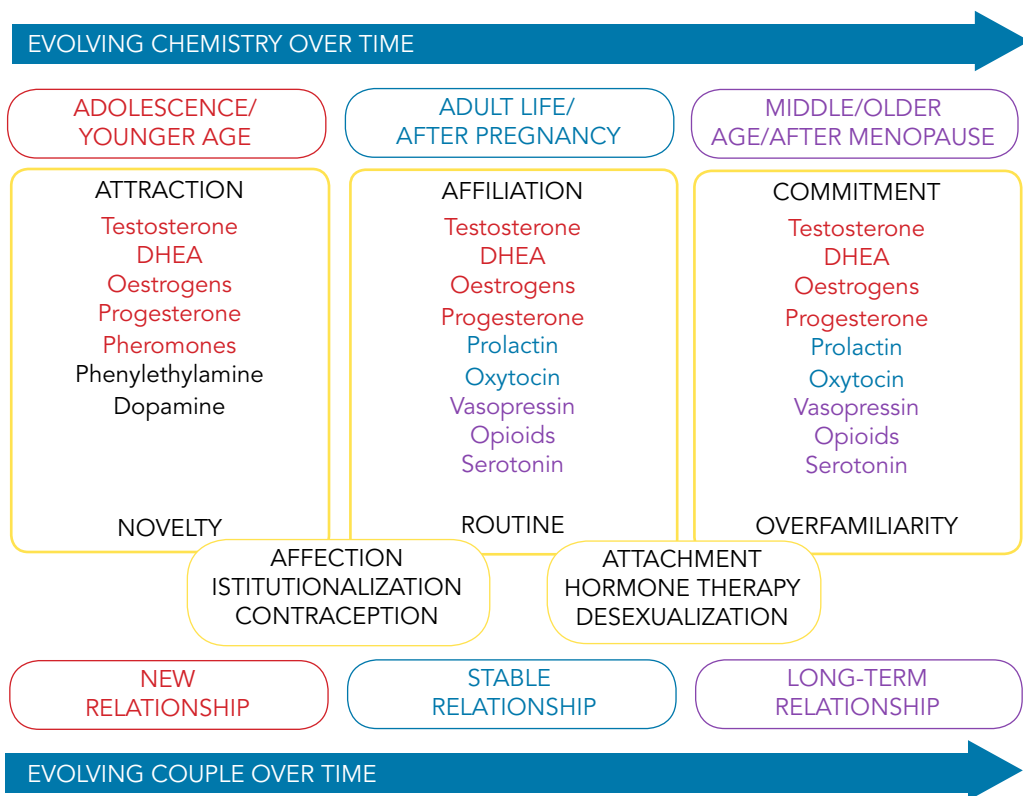
- **Figure 2** explains several factors and modulators involved in women sexual response during their lifespan. For instance, testosterone levels are usually higher during adolescence, being in part responsible for those well-known changes happening during women entire life. On the other side women in menopause have different chemical mediators (i.e., oxytocin, serotonin) leading them to develop attachment and desexualisation.

During the daily clinical practice it is of foremost importance to focus the attention on symptoms and distress, knowing that distressful symptoms can easily turn into dysfunctions. The acceptance of sexual related problems/dysfunction is fundamental for treatment compliance; at this regard, many variables affect treatment adherence and outcome, such as age, stage of life and relationship with the partner. When treating women with sexual dysfunction, the "couple perspective" must not be neglected. According to DSM-5, distress is a major determinant in defining female sexual dysfunction.

As outlined by Shifren *et al.* [1], the prevalence of distressing sexual problems peaked in middle-aged women was considerably lower than the prevalence of sexual problems. Moreover, Rosen *et al.* [6] further highlighted how sexual distress and dissatisfaction with sex life are strongly related, pointing out that distress is higher in women with low sexual desire in a partner relationship. The most common conditions associated to sexual distress were urinary incontinence, depression and anxiety.

Among distressful sexual-related issues, the so called "genitourinary syndrome of menopause" (a definition introduced in 2014 by the International Society for the Study of Women's Sexual Health and the North American Menopause Society) [7] encompasses a collection of symptoms and signs associated with a decrease in oestrogen and other sex steroids involving changes to the labia majora/minora, clitoris,

● **Figure 2.** Female sexual response during lifespan



Source: Nappi, Domoney, 2013 [2].

vestibule/introitus, vagina, urethra and bladder. The syndrome may include but is not limited to:

- genital symptoms of dryness, burning, and irritation;
- sexual symptoms of lack of lubrication, discomfort or pain, and impaired function;
- urinary symptoms of urgency, dysuria and recurrent urinary tract infections.

Women may present some or all of the signs and symptoms, which must be bothersome and should not be better accounted for by another diagnosis.

Androgens are fundamental as well in this setting. Androgen deficiency may present with reduced sex motivation, sex fantasy, sex enjoyment, sex arousal, and genital vasocongestion [8]. Unfortunately, no significant plasma androgen levels cut-off has been identified so far defining this condition. Despite this, testosterone and its metabolites were shown to decline with age in women.

There is no doubt that sexual dysfunction is a couple's issue. Paraphrasing Newton's second law of motion, S. Kingsberg stated that the sexual equilibrium implies that any change in one partner will produce a change in the other. At this regard, according to Dennerstein *et al.* [9], a higher reported sexual interest was significantly associated with comparatively positive attitude toward partner interaction, meaning that women suffering from characteristics of hypoactive sexual desire disorder have more negative patterns of partner interactions.

Unfortunately, no FDA-approved treatments exist for women with sexual dysfunction. Existing drugs are designed for women in menopause, leaving thus many premenopausal women without a real therapeutic chance. The process of balancing efficacy and safety of a chronic treatment for a non-life threatening condition is very difficult in women of any age, but there is some hope that the gender gap in sexual medicine will come to an end. Insightful research focused on women's needs and expectations and the availability of novel compounds will finally induce medical regulatory agencies to approve an effective and safe pharmacotherapy for FSD.

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# Sexuality is male

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It is widely renowned how life expectancy is increasing in the general population, however the gap between men and women, consisting of 6-7 years, is still remaining there.

One of the major points for this persisting difference is the prevalence of coronary artery disease (CAD) in men, which is higher than in women. Several factors may account for this difference, such as male hormonal milieu or male attitudes/behaviours (riskier behaviour and less care of personal health). In on one hand men pay less attention to their lifestyle, on the other one they show much interest in sex. Due to this, our research group developed a peculiar concept, which states that an impotent man is a “lucky person”. This happens since men with erectile dysfunction (ED) have the truly chance to undergo some kind of medical examination, improving not only their sexual life but their sexual health as well [1].

According to a population based longitudinal study [2] about CAD, its prevalence was shown to be very high in men with ED; moreover, young patients with ED were at consistently higher risk of developing cardiovascular events. A meta-analysis [3] further demonstrated how this risk for cardiovascular events is very high for younger patients with ED, whereas it remains somehow hidden behind other relevant comorbidities in older subjects.

Back in 2003 [4], our group developed a structured interview (SIEDY) in order to quantify and identify the main domains (among body, couple, and mind) interacting in each patients with ED. Organic (body), relational (couple), and intrapsychic (mind) factors are independently inducing sexual problems in men. When classifying our patients according to age tertiles (younger, middle-aged, and older), the organic component was a significant determinant in all the three groups; couple problems emerged as an important factor for younger subjects alone, whereas the



intrapsychic component was important for both young and middle-aged people. In a subsequent study, patients with ED were followed up using psychometric questionnaires and the aforementioned structured interview on erectile function (SIEDY). The mean follow-up was of 4.3 years; the whole study was devoted to report incidence of major cardiovascular events (MACEs). In our series of patients 8% of the population developed MACEs, being fatal in roughly 10% of cases. Beside this, SIEDY scale 1 (i.e., the organic domain) was able to predict MACEs in younger/middle aged patients, but not in the elderly ones. Several other factors influence ED; among these, erection during masturbation seems to play a paramount role. This parameter emerged as a significant predictor of MACEs in younger patients according to another study performed by our group [5]; moreover, when comparing diabetic vs. non-diabetic patients from the same cohort, impaired erection during autoerotism was crucial in predicting MACEs in the latter. As a whole, low-risk patients are those where low erectile performance during masturbation seems able to better predict MACEs. This statistical significance was kept even after adjusting for possible confounders.

While psychometric questionnaires give hint in a “subjective” fashion, other objective measures can be used in this research setting. For instance, response to intracavernous prostaglandin injection recorded by penile colour-Doppler ultrasonography (US) predicts MACEs. Our group focused on a peculiar parameter derived from penile US, flaccid acceleration (a derivative of rising systolic blood pressure), which resulted even more accurate than classical US in identifying people at higher risk for cardiovascular events. Once again, this holds true for people with a low cardiovascular risk profile [6].

In Italy, “Progetto Cuore” is an often used algorithm developed to predict CV risk in the general population. We therefore compared “Progetto Cuore”-predicted CV events with those really observed in this cohort of ED subjects, The rate of predicted vs. observed MACE in subjects with ED was not different when categorized according to several classical and newly identified risk factors. However, a newly proposed, atypical risk perceived reduced love from the partner did so [7].

People perceiving less sexual interest from the partner are not only at higher risk for cardiovascular events, but also for their lethality. In another study we found that a reduced sexual interest in the partner was associated with conflictual relationships within the couple, partner’s diseases interfering with sex and with menopausal symptoms. Moreover, people perceiving less sexual interest from the partner tend to postpone any kind of andrological evaluation, with all the possible detrimental consequences in terms of both general and sexual health. It seems that these studies are suggesting how love prolongs life.

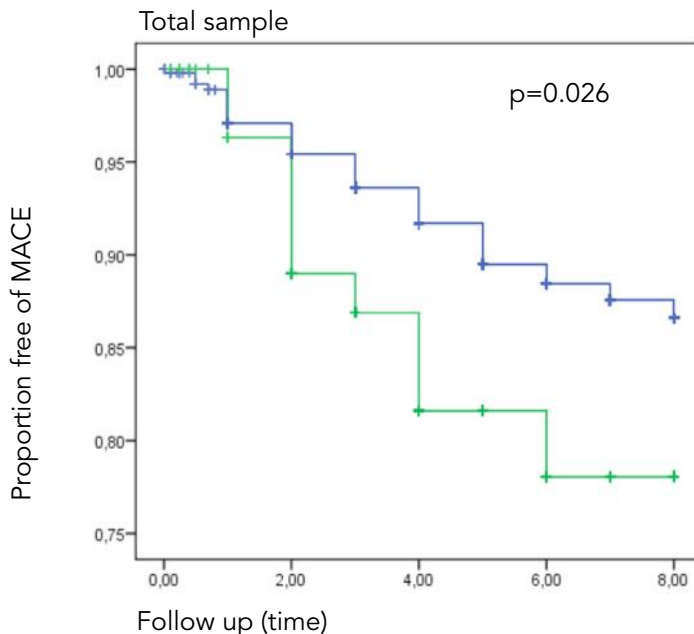
At this regard, the well known “widowhood effect” (i.e., the decreased male survival following the death of a spouse) seems to confirm our results; as a matter of fact, the spouse is able to drive the male to less risky and healthier lifestyle behaviours.

If this paradigm appears true for men, when considering women, things get different. The widowhood effect observed in men has no significant female counterpart [8].

The final consideration focuses on men betraying love. Our group devoted its efforts in studying men with extramarital affairs referred at our attention for sexual dysfunction. We observed that these men are often coming from unhappy primary relationships, have more stress, higher androgenisation, and better penile blood flow and erections. Hence, these men, although stressed, appear rather healthy. Conflicting with this, we found how men with stable extramarital affairs have a higher incidence of MACEs [9] (● Figure 1). However, when the sample was divided according to the perceived sexual interest of the partner, the incidence of MACE was significantly associated with extramarital affairs only in men reporting a primal partner that is still interested in sex. We can conclude that to be unfaithful represents an independent risk factor for MACE. However, although a perceived sense of feeling loved seems to protect a lover's life, betraying his primal partner could punish him.

We can postulate that deceiving a sexually available and involved mate could lead to a deeper sense of guilt and, consequently, may represent an added factor leading

● **Figure 1.** KM curve showing MACEs incidence in men with (green line) and without (blue line) extramarital affairs



Source: Fisher et al., 2012 [9].

to psychological distress and even CV events. Therefore, infidelity induces not only heart trouble in the betrayed partners, but seems to be also able to increase the betrayer's heart-related events.

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# Sexuality is for individuals with cancer

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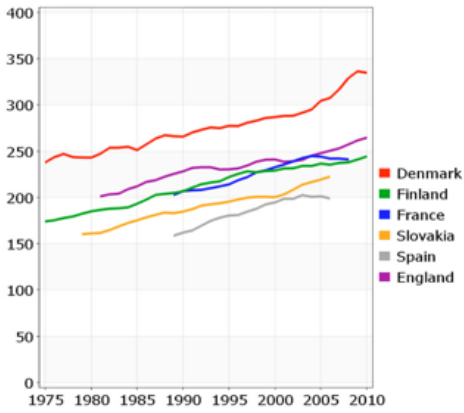
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Considering epidemiological data, the incidence of cancer is increasing in both men and women, with a parallel decrease in mortality observed in both genders (• **Figure 1**). Cancer is therefore becoming a chronic disease, not only in western countries. If on one hand this means that oncologists are going in the right direction, on the other several issues are arising. By increasing overall survival side effects related to cancer treatment, including sexual functioning and dysfunctioning, are becoming a concern. Focusing on sexual function, cancer detrimental effects may be classified into direct (e.g. reduced sexual desire and arousal, dysfunction from the disease or the treatment, pain during intercourse) or indirect (e.g. reduced self image, depression, limited mobility, energy and fatigue, partnership difficulties, continence and fertility concerns, fear that sex may worsen the condition).

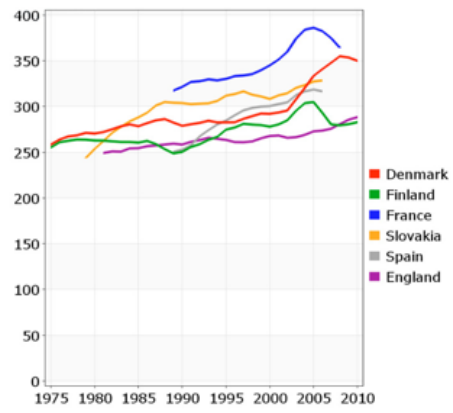
Prostate cancer is the most common malignancy in men, not only anymore in western countries. Among curative treatments, radical prostatectomy (RP) plays an important role in managing the localized disease; however, this procedure may be burdened by some relevant sexual sequelae, such as erectile dysfunction (ED) and ejaculation disorders. The incidence of post-RP ED varies according to the performed procedure, whether it is nerve sparing bilaterally, unilaterally or non nerve-sparing. As a matter of fact, the most accepted etiology for ED following RP is mainly neurogenic. However, the need of preserving the so called “neuro-vascular bundle” and therefore the post operative erectile function, sometimes crashes against having a proper oncological dissection assuring a radical removal of the disease. Post-operative ED develops right immediately after the surgical procedure; this is a very important difference as compared to what happens after radiotherapy, another therapeutic option for localized prostate cancer. Post-radiotherapy ED develops in 40-50% of patients after an onset period usually lasting 1-3 years, with a vascular rather than neurogenic etiology [1, 2]. Moreover, the

● **Figure 1.** Cancer incidence and mortality in men and women

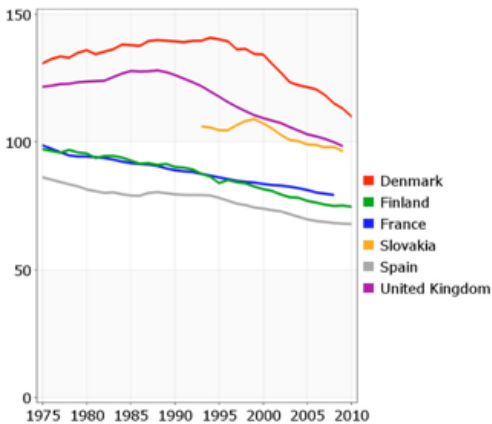
Cancer incidence in women



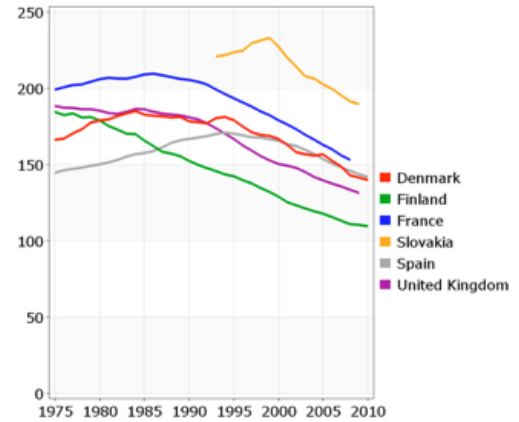
Cancer incidence in men



Mortality in women



Mortality in men



Source: <http://globocan.iarc.fr>

greatest concern of radiation therapy remains bowel toxicity, such as mucus and blood loss, and proctitis [1].

Sexual complaints following prostate cancer treatment are not limited to ED: decreased or loss of ejaculation, low sexual desire, and pain during orgasm may be observed as well. It is important to consider that a sexually functional man is different from only a functioning penis.

Fortunately, there are several therapeutic possibilities. For instance, following a nerve sparing radical prostatectomy, 41% of patients will respond to tadalafil 20 mg as compared to 19% with placebo. Notably, when focusing on men with some post-operative spontaneous tumescence, an even higher chance of therapeutic response has been found. Similar results were observed when treating post-radiotherapy ED with sildenafil [1, 2]. For those who do not respond to pharmacologic treatment with phosphodiesterase type-5 inhibitors (PDE5-i), several other options exist (intracavernous injection, vacuum device, penile prosthesis).

Testicular cancer, though accounting for only 1% of new cancer diagnosis in men, is known to affect mainly young patients, in their more fertile and sexually active period of their life. Testicular cancer impacts on male sexual function, causing mainly ejaculation problems irrespective of patients' age [3]. According to a study published by our group, 45% of patients with testicular cancer treated with orchiectomy and radiotherapy reported adverse effects on sexual life, though the percentage of sexually active patients remained the same (90%) at a 6 months follow up [4].

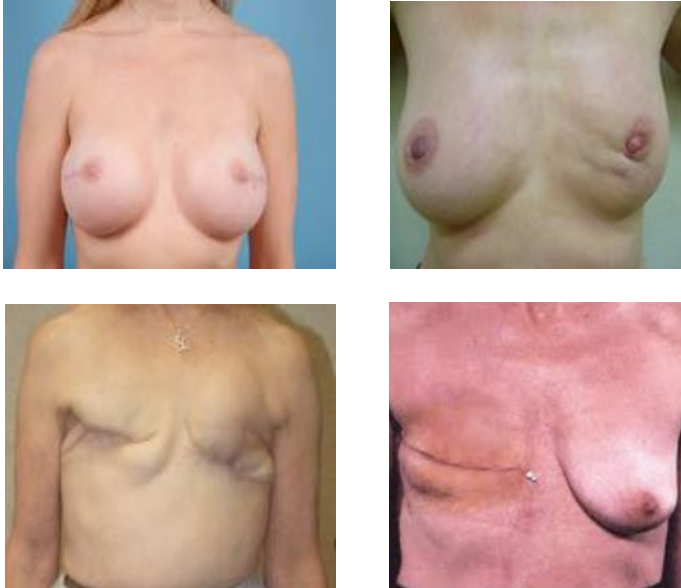
Penile cancer remains one of the most challenging male cancers in terms of sexual-related sequelae. According to Romero *et al.* [5], 60% of patients treated for penile cancer (with partial penectomy) maintained erectile function, 72% normal ejaculation and orgasm; conversely and rather disappointingly, only one third of them maintained pre-treatment same frequency of sex.

Gynecological cancer might be even more challenging than male neoplasms regarding sexual functioning. The case of cervical cancer glaring: when treated with radiotherapy, treatment related toxicity might result in vaginal atrophy, decreased lubrication, and narrowing of introitus due to radiation-induced fibrosis. It is easy to understand how these factors prevent women from having a pleasant sexual life [6]. However, it is possible to help these women thanks to the use of vaginal trainers, lubricating creams, and pelvic floor physiotherapy.

When talking about female cancers, it is impossible not to mention breast cancer. Breast cancer is the most common malignancy in women, with an increasing incidence and a decreasing mortality. Current treatments (surgery w/without radiotherapy, hormonal therapy, chemotherapy) achieve very good results in terms of survival, but may alter the woman's body shape (• **Figure 2**), preventing her from having a serene sexual life. It is paramount to remind how cancer does not involve the patient alone but the whole couple; the partner has to accept that the situation has changed due to the treatment, and consequently has to adjust. For instance, new erotic regions have to be explored if those already existing were affected by cancer treatment.

Sexuality is definitely for individuals with cancer, but these patients need to be counseled on the side effects of treatment allotting the proper time to discuss sexuality and its related issues. In this setting, a multidisciplinary approach involving psychologists, sexologists, and other professionals is fundamental.

- **Figure 2.** Cosmetic outcomes following breast cancer treatment



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## SESSION 3

SEXUAL HEALTH IS IN OUR SOCIETIES





# Sexuality is not a human right... yet?

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Trying to paraphrase Michel Foucault (1926-1984), health and human rights have currently become the major “regime of truth” of sexuality. Therefore, it is important to understand whether sexual rights can be considered truly human rights and whether human rights and medicine are in concordance or even in some cases in opposition. This issue needs to be considered taking into account that sexuality as a comprehensive concept is in part the product of history and social construction, being supported and disseminated by social actors, organizations and conceptual apparatus; moreover, it is elaborated and worked through differently in different contexts, being acceptable in some places and not in others [1-3].

The process of construction of sexual health and human rights started at the beginning of the XX<sup>th</sup> century with the World League for Sexual Reform program claiming several reforms such as equal rights for women, marriage reform, tolerance of free sexual relationship, consideration of homosexuality no longer as a crime or a disease, and so on [4]. Unfortunately, the advent of European nationalisms and fascisms and the onset of the World War II interrupted this process.

The revival of social and sexual emancipation or rather social emancipation through sexual liberation occurred during the Sixties with the introduction of oral contraceptive drugs and the legalization of abortion lead to the so-called “sexual optimism”, together with the Masters & Johnson’s psycho-physiological theory of orgasm [5]. As a result, the transformations of sexuality into sexual health and the development of specific human rights as “sexual rights” constitute the new cultural and social standards for sexuality [6].

Beside this, current ideas about sexuality are widely disseminated around the public sphere:

- sex is good for health and enhance the quality of life;
- sexual health enhances general health;

- chronic disease decreases the possibilities for a good sexual life;
- sexual activity enhance life expectancy;
- good health favours a satisfying sexual life;
- sexual health is part of well-being;
- sexual health is a human right.

The concept of sexual health as a human right has been developed since and has evolved, passing through different phases.

### **Inclusion of gender, and reproductive issues in the human rights framework**

According to the proclamation of Teheran (1968) [7], sexual issues entered the field of human rights through family planning (i.e., parents have a basic human right to determine freely and responsibly the number and the spacing of their children) and women's rights. Moreover, the World Conference On Human Rights (Vienna, 1993) [8] further underlined the importance of women's rights: elimination of violence against women in public and private life, the elimination of all forms of sexual harassment, exploitation and trafficking in women, the elimination of gender bias in the administration of justice and the eradication of any conflicts which may arise between the rights of women and the harmful effects of certain traditional or customary practices, cultural prejudices and religious extremism. One year later, the International Conference on Population and Development held in Cairo [9] stated that "people are able to have a satisfying and safe sex life", introducing thus sexual life in the framework of human and reproductive rights. The fourth World Conference on Women (Beijing, 1995) [10] confirmed the emphasis on the fundamental right of women "to have control over and decide freely and responsibly on matters related to their sexuality".

### **Definition and implementation of sexual health**

This process started in 1975 with the WHO definition of sexual health until the working definition was published by the WHO in 2006:

Sexual health: 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. Sexual health requires a positive, respectful approach to sexuality and sexual relationships and the possibility of having pleasurable and safe sexual experiences, free of coercion, discrimination and violence. For sexual health to be attained and maintained, the sexual rights of all persons must be respected, protected and fulfilled.

### **Definition and inclusion of the notion of "sexual rights" in the framework of sexual health**

The sexual rights were defined in several occasions starting with the IPPF Charter on Sexual and Reproductive Rights first published in 1996 and revised in 2008. Sexual

rights were defined during a PAHO/WHO meeting held in Antigua (Guatemala) in 2000:

Human rights are inherent to human beings. Human rights are above cultural values. If a particular culture has a practice that contravenes a human right, the cultural value should be changed, as in the case of the cultural practice of female genital mutilation. The human rights approach to health promotion has been explicitly stated in the case of the promotion of reproductive health. The recognition of sexual rights is evolving. Human rights are those principles that are universally perceived as protecting human dignity while promoting justice, equality, liberty, and life [11].

The World Association for Sexology's (WAS) Declaration of Sexual Rights (Hong Kong 1999) stated the right to sexual pleasure. WAS and other organizations have included sexuality as a human right during the last decades, as testified by the Montreal Declaration ("Sexual Health for the Millennium", 17<sup>th</sup> World Congress of Sexology, Montreal 2005). The most recent declaration of sexual rights was published by WAS in March 2014 (● [Table 1](#)).

● **Table 1.** WAS Declaration of Sexual Rights (2014)

1.	The right to equality and non-discrimination
2.	The right to life, liberty, and security of the person
3.	The right to autonomy and bodily integrity
4.	The right to be free from torture and cruel, inhuman, or degrading treatment or punishment
5.	The right to be free from all forms of violence and coercion
6.	The right to privacy
7.	The right to the highest attainable standard of health, including sexual health; with the possibility of pleasurable, satisfying, and safe sexual experiences
8.	The right to enjoy the benefits of scientific progress and its application
9.	The right to information
10.	The right to education and the right to comprehensive sexuality education
11.	The right to enter, form, and dissolve marriage and other similar types of relationships based on equality and full and free consent
12.	The right to decide whether to have children, the number and spacing of children, and to have the information and the means to do so
13.	The right to the freedom of thought, opinion, and expression
14.	The right to freedom of association and peaceful assembly
15.	The right to participation in public and political life
16.	The right to access to justice, remedies, and redress

However, an important issue remains that one related to sexual orientation and gender identity. The *Yogyakarta Principles on the application of international human rights law in relation to sexual orientation and gender identity* (● **Table 2**) [12] provide an extensive list of human rights that are recognized in international human rights law and have a relevance to sexual orientations and gender identity.

● **Table 2.** Yogyakarta Principles on the Application of International Human Rights Law in relation to Sexual Orientation and Gender Identity (2007)

Principle 1.	The Right to the Universal Enjoyment of Human Rights
Principle 2.	The Rights to Equality and Non-Discrimination
Principle 3.	The Right to Recognition before the Law
Principle 4.	The Right to Life
Principle 5.	The Right to Security of the Person
Principle 6.	The Right to Privacy
Principle 7.	The Right to Freedom from Arbitrary Deprivation of Liberty
Principle 8.	The Right to a Fair Trial
Principle 9.	The Right to Treatment with Humanity while in Detention
Principle 10.	The Right to Freedom from Torture and Cruel, Inhuman or Degrading Treatment or Punishment
Principle 11.	The Right to Protection from all Forms of Exploitation, Sale and Trafficking of Human Beings
Principle 12.	The Right to Work
Principle 13.	The Right to Social Security and to Other Social Protection Measures
Principle 14.	The Right to an Adequate Standard of Living
Principle 15.	The Right to Adequate Housing
Principle 16.	The Right to Education
Principle 17.	The Right to the Highest Attainable Standard of Health
Principle 18.	Protection from Medical Abuses
Principle 19.	The Right to Freedom of Opinion and Expression
Principle 20.	The Right to Freedom of Peaceful Assembly and Association
Principle 21.	The Right to Freedom of Thought, Conscience and Religion
Principle 22.	The Right to Freedom of Movement
Principle 23.	The Right to Seek Asylum
Principle 24.	The Right to Found a Family
Principle 25.	The Right to Participate in Public Life
Principle 26.	The Right to Participate in Cultural Life
Principle 27.	The Right to Promote Human Rights
Principle 28.	The Right to Effective Remedies and Redress
Principle 29.	Accountability

Even more complicated is the case of gender identity (gender dysphoria). If one hand there is a substantial subgroup of these individuals claiming the right to access to sexual reassignment surgery (SRS) without psychiatric diagnostic (e.g., gender dysphoria), on the other more and more people claim the right to change civil status without obligation of sterilization or SRS [13]. It's a novel anthropological quest, aiming at a new definition of sex/gender detached from the possession of specific genital organs. In this case, human rights advocates claim that in some cases psychiatric diagnosis are a form of violation of basic human rights [14].

## Conclusions

Finally, the recent emergence of specific LGBT rights and the fight against discrimination linked to sexual orientation and gender identities shows how the field of sexual health and sexual rights is still anchored in heteronormative concerns and how the demands of LGBT groups and persons differ from these. One might wonder to what extent issues and problems linked to gender, i.e. the diversity and fluidity of gender identifications, are replacing issues of sexuality. If the sexual revolutions of the sixties and seventies have open the way to the separation of non reproductive sex from the domain of reproductive sex and marriage, in the near future we may observe the emergence of issues related to the self determination of intimate and sexual identities.

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# Female genital mutilation: what's going on in Europe

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Female genital mutilation (FGM) is a procedure involving partial or total removal of external genitalia for non-therapeutic reasons. This practice exists in Africa, the Persian gulf, Southeast Asia, South America and, due to migrations, in Western countries. More than 500,000 women and girls living in Europe are estimated to have undergone FGM (• [Figure 1](#)). The UK counts 137,000 women who underwent FGM.

The term FGM includes different procedures classified in four types. These can cause specific health-related consequences (physical, obstetric, psychological, and sexual). The increasing presence of women living with FGM in Europe has led to implementing dedicated outpatient clinics for a better specific trained care, e-learning/training courses, medical recommendations, national clinical groups, specific penal laws and mandatory recording/reporting norms.

Despite all these efforts, the global knowledge of FGM is still insufficient. Several research gaps in the care of women with FGM have yet to be covered. One of these is psychosexual function and care [1]. Because of that, the available recommendations can differ depending on the country and are mostly experts opinions. Published studies are biased since they do not differentiate women according to types of FGM and clitoral integrity. Moreover, it is definitely a complex subject to investigate due to the fact that female sexuality is multifactorial and, in the case of FGM, specific anatomic and sociocultural issues have to be considered, including stigmatization, other possible coexisting past traumatic experiences, migration, difficulties and differences in verbalizing feelings, and so on.

Possible interventions that can improve the sexual function in women with FGM are available. Defibulation (surgical opening of infibulation, FGM type III, exposing the urethral meatus and the vaginal introitus) for instance, improves superficial dyspareunia in women with FGM type III [2]. It also treats other uro-gynecological



• **Figure 1.** FGM in Europe



complications of FGM type III and improves overall sexual health. As sexuality is multifactorial, physicians should not focus on FGM alone but will have to consider the whole sociocultural, clinical and psychological picture.

Clitoral reconstruction is a relatively recent surgical technique presented as the treatment capable of restoring sexual pleasure after FGM (• **Figure 2**). The surgery consists in resecting the scar tissue covering the clitoris re-exposing the clitoral stump. It has been reported as a safe and effective procedure [3], even though published evidence is still unsatisfactory and there are no long term useful data on efficacy and safety. According to our recent review article [4], only 4 prospective cohort studies addressed this topic, with serious methodological limitations: clitoral function and pain were evaluated with non validated and non reproducible scales, post op follow up was no long term, the lost of follow up was high and no information on eventual multidisciplinary care, body image and female identity is reported [3]. Because of these reasons, the recent Green Top Guidelines on management of women with FGM of the Royal College of Obstetricians and Gynaecologists recommend not to perform clitoral reconstruction and insist on the need of further studies on the subject [5].

Up to 100% of the women included in the previous studies, requesting for clitoral reconstruction reported that the main reason for undergoing it was to restore their female identity and completeness [3]. Antonetti Ndiaye *et al.* [6] who offered multi-

• **Figure 2.** Clitoral reconstruction, before and after surgery



disciplinary care to women requesting clitoral surgery (psychosexual care and education on anatomy and physiology) showed that only 15.9% of women still thought of clitoral reconstruction as a valuable therapeutic option. Moreover, a deeper screening revealed how the majority had a previous coexisting trauma (e.g., forced marriage, rape, etc.).

Sexuality of women with FGM should be cared of and studied in a multidisciplinary way, including all the factors contributing to sexual function and the specific anatomic and sociocultural issues related to FGM. Women requesting for clitoral reconstruction should be informed on the scarcity of data on safety and efficacy of the procedure and be offered detailed information on their anatomy, FGM, physiology and sexuality as well as psychosexual therapy in order to select the ideal candidate and achieve better outcomes. Further multicentre and prospective studies on safety and efficacy of the technique should be conducted to redact official recommendations.

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## Conclusions

*Sexual ecology* is a field of interest and research which has gained increasing importance over the last years. This forum, along with the well-renowned participating experts, testified to the vivacity and potential hidden behind the several facets of *sexual ecology*.

Embracing biology, psychology, and society, *sexual ecology* is wide-ranging concept which must be addressed from several different points of view. Andro-urologists, gynecologists, psychologists, and sociologists are just examples of the types of professionals required for a proper investigation and understanding of this subject matter.

During this forum, several aspects related to *sexual ecology* were thoroughly discussed and analyzed. Starting from the mind/brain, Prof. James Pfaus and Prof. Pedro Nobre provided several insightful and valuable cues. If, on one hand, Prof. Pfaus used evidence from his preclinical laboratory experiments to demonstrate how sexuality is phylogenetically determined from the neuro-behavioral standpoint and not at all related to reproductive purposes, Prof. Nobre on the other hand offered a clinical perspective, discussing mind-body duality and connections in relation to overall sexual health, thus highlighting how genital arousal is not directly related to subjective arousal.

Mirroring the mind, Prof. Mario Maggi and Prof. Rossella Nappi devoted their efforts to contextualizing *sexual ecology* in the body dimension. In this context, Prof. Maggi drew from his decades of research to cast light on male sexual and general health, showing how these two aspects are strongly intertwined and closely cross-acting. Approaching this topic from the opposite side, Prof. Nappi explored several aspects of female sexual health and their correlates in terms of sexual response, depicting a compelling picture of the general state of the art and possible future perspectives in this regard.

Stepping away from the female-male duality, Prof. Johannes Bitzer and Prof. Luca Incrocci explored the sexual dimension in elderly and cancer patients, respectively. It emerged how sexual health must not be neglected or pushed aside in these two populations, being at the same time an issue to be properly addressed and a major determinant of the general quality of life.

Having said this, the behavioral, biological, physiological, and clinical perspectives do not fulfill the entire concept of *sexual ecology*. In fact, it is within society where all those ideas take place and somehow get shaped. They do so through being modulated and expressed when it comes to sexual rights. To this regard, Prof. Alain Giami traveled back in time to summarize the history and evolution of sexual health as a human right, whereas Dr. Jasmine Abdulcadir confronted us all with the still existing practice of female genital mutilation, present even in Europe.

What emerged from this forum is how *sexual ecology* is a vivacious interdisciplinary field, one which is still a work in progress, but which is definitely attractive and promising of new developments.














“Sexual health and sexual ecology” is the theme of the Forum organized by IBSA Foundation for Scientific Research in collaboration with the URI-Urological Research Institute (Milan San Raffaele Hospital).

Sexual ecology – a new field of interest and research which has gained increasing importance over the last years – represents a complex and multifaceted reality embracing different disciplines.

During the Forum prominent international experts in the fields of neurobiology, obstetrics/gynecology, andro-urology, psychology, and sociology discussed and analyzed in great depth the various and often hidden aspects of the sexuality.