Review

Definition and diagnosis of sexuality in the XXI century

Camil Castelo-Branco*, Milagro León Huezo, José Luis Ballescá Lagarda

Hospital Clínic, Institut Clínic de Ginecologia, Obstetrícia i Neonatologia, Faculty of Medicine, University of Barcelona, Spain

Received 1 November 2007; received in revised form 18 January 2008; accepted 6 February 2008

Abstract

Background: Regardless of the relationship between aging and sexual dysfunction, most adults continue to be sexually active in their later years. Conditions such erectile dysfunction or hypoactive sexual desire disorder present one of many barriers to maintain a healthy sex life.

Objective: This article links the concurrence between the social, cultural, political, and economic changes on a worldwide and historical level and the changes observed in sexuality. This review comprises from medical, biological and behavioral concerns to those of rights and social justice. To give an idea about the interests and trends of modern research on sexuality, the manuscript includes a review on the impact of contraception, public advertising, mass media and new technologies on sexuality and introduces the concept of sexual dysfunction.

Discussion: Data suggest that broader cultural beliefs about appropriate sexuality are evident in general practice. Asking about sexual health remains a low priority for many doctors, particularly when it comes to older patients.

Conclusion: The influence of all these previous concerns on the field of sexuality notion is particularly apparent in the development of concepts such as sexual health and sexual rights. These new concepts had an effect on researchers allowing them to describe connections between highly limited occurrence and global systems. Further education is needed to raise professional awareness about the importance of healthy sexuality in aging.

© 2008 Elsevier Ireland Ltd. All rights reserved.

Keywords: Sexuality; Reproduction; Paternity; Socio-economics; Contraception; Gender identity; Metrosexual; Advertising; Mass media; Sexual dysfunction

Contents

1. Introduction .................................................. 5 1
2. Evolution of sexuality from ancestors to XXI century ................................................................. 5 1
   2.1. Sexuality and reproduction .................................................. 5 1

* Corresponding author at: Institut Clinic de Ginecologia, Obstetrics and Neonatology, Hospital Clinic, Villarroel 170, 08036 Barcelona, Spain. Tel.: +34 93 227 54 36; fax: +34 93 227 93 25.
E-mail address: castelobranco@ub.edu (C. Castelo-Branco).

0378-5122/$ – see front matter © 2008 Elsevier Ireland Ltd. All rights reserved.
1. Introduction

Living organisms possess the capacity to grow, respond to stimuli, reproduce, die and, through natural selection, adapt to their environment in successive generations. In order to this natural sequence of events occurs in a correct way some necessary stimuli are required, to act as triggers, for their normal initiation and culmination. Instincts essentially sex and hunger, here fulfill their function, which led to Friedrich Schiller to postulate that “the world maintains its drives through hunger and love.”

Thus, it is evident that one of the most important characteristics that define living beings is their capacity to reproduce, which in many animal species influences and directly relates to their sexuality. The sexual behavior acquires progressively more complexity in the scale of animal development, and in the human species reaches its maximum, where an array of factors are implicated, cultural, social, religious, psychological and biological, so that human sexual conduct is clearly regulated, modulated and determined by the interaction of all these conditioning factors, predominating, each one of them, individually. Consequently, human sexual behavior is the least one ruled by its basic instincts, making it in this sense, one of the most anti-naturals.

This article links the concurrence between the social, cultural, political, and economic changes on a worldwide and historical level and the changes observed in sexuality. This review comprises from medical, biological and behavioral concerns to those of rights and social justice. To give an idea about the interests and trends of modern research on sexuality, the manuscript includes a review on the impact of contraception, public advertising, mass media and new technologies on sexuality and introduces the concept of sexual dysfunction.

2. Evolution of sexuality from ancestors to XXI century

2.1. Sexuality and reproduction

Not all living organisms enjoy the pleasure to reproduce by sex, inferior plants, unicellular organisms and some multicellular organisms, reproduce asexually, by binary fission, fragmentation, by spores or budding. The majority of species that have sexual reproduction generally require some type of stimulus that can wake up interest between both sexes, and that it happens in the precise moment to achieve fertilization. Generally, and in the majority of species, the female accomplishes the responsibility to initiate the male’s interest. Moreover, females must attract and excite the male to finally seduce him [1]. In consequence, the female assumes the responsibility to select those males, which for their appearance, strength or other physical characteristics, can supply better quality genes that might bring better modifications to their species.

To exert this attraction, especially in fertile seasons, females are equipped with systems or mechanisms to alert males. These systems usually highlight genital aspects that catch the attention of male interest.
Among some simians for example, during the estrous period, fertile females can be easily recognized for their engorgement and reddish-brilliant coloration of the vulva and the entire neighboring genital-anal region in general [2]. On the other hand, males in the majority of species occupy themselves fundamentally in showing their beauty, apparent strength, and control, in order to copulate with the greatest possible number of females and to get the maximum of progeny attaining the continuity of their species, regardless of its genetic improvement. For these different attitudes in front sexuality, many investigators have the opinion that females are responsible for the improvement of their species, and males for its conservation [3].

2.2. Sexuality and paternity

In the majority of primates, humans included, females has a “hidden estrous” with a lack of external signs during ovulate period [1]. In these circumstances, males are unaware of the fertile days and for some authors, this fact probably led our ancestors to dedicate preferably to one single woman for easier control of her fertile periods. At the same time, this new situation allowed for the paternal contribution to the upbringing of the offspring appearing one of the greatest variations in the human specie: the progressive disappearance of the polygyny. The polygamous man that goes from cave to cave looking for partners to copulate is switched to the monogamous man, hunter and food provider.

It must be considered that neither in reptiles nor in the majority of mammals is there a longstanding relationship between father and his descendants. For most of the animals this involvement is reduced in great part to the male function of females inseminate. For this reason, in wild nature it is common that male progenitors do not even know their offspring. Presumably, our ancestors in the beginnings of the human species acted in this way. Moreover, this situation still partially happens in some African tribes, where even though the father is perfectly aware of his descendence, at a certain age, the child education depends more on the group than individually on its progenitors [4].

Among the great variations in animal species, there are some stunning and notable exceptions, as is the case of the so-called California mouse, in which the male takes great care of his offspring and also takes up the role of a very effective “midwife” during the delivery. Some big primates are also very careful with their young, on the contrary, cats do not doubt to eat up their own offspring if necessary, in order to enjoy the female’s favors once again.

2.3. Social structure and social changes

Progression in the animal scale implies organizational structures of cohabitation between individuals. In this context, psychosocial factors more than those entirely biological reach a greater influence over sexual conduct. In the human, culture plays a dominant role in sexual attraction and response, almost definite. This is illustrated by an amazing study carried by Alfred Kinsey in relation to the sexual behavior of different men according to their socio-economic status [5]. Men of lower status experienced more precociously, an earlier age, their first sexual intercourse and it was less probable that they involved in other type of sexual activity, such as erotic games or oral sex. On the opposite, men of higher status were more likely to involve in masturbation, and when they initiated sexual activity with a couple often recurred more to games and oral sex [5].

In female sexuality, cultural and social influence has been impressive. In western cultures, women could not and should not express their sexuality at the beginning of the last century. Even investigation and publication of the issue was considered inappropriate. In this sense, the publication by Kinsey of a book about female sexuality was emphasized as the “insult of the century” against women, which made the Rockefeller Foundation in 1954, based on the defense of the morals and values of the American people, stopping all economic grants, that until the time, the Kinsey Institute received as scholarships.

The social and cultural changes of the past century were too intense affecting in profound way sexuality. Industrial Revolution had an important role in these changes, especially with the incorporation of women to the working force. This clearly supposed more disclosure and liberty, as opposed to the traditional isolation of many centuries, where their function was limited to house and children, as well as satisfying punctually the sexual requirements and needs of their husbands.

This new social role for women opened new horizons and allowed communication and relationships with co-workers of both sexes, which opened the possibility to learn other alternative conducts, including
sexual, at the same time, these new contacts could facilitate a wide variety of new sexual alternatives. On the other hand, this change of scenario and functions for women was of extreme importance in the establishment of feminist movements.

In addition, in this historical moment appears hormonal contraception, becoming a real revolution in the sexuality of couples in the second half of the past century. This pharmacological success was of such magnitude: sanitary, social, cultural, that it is possible to establish a time frontier, the before and after of the so-called “pill”, as if it was the only and exclusive in the pharmacopoeia. This breakthrough modified greatly the sexual behavior in the second half of the past century, despite its religious connotations, allowing for the first time, the safe and effective separation between sex and reproduction.

2.4. Sexuality and contraception

During the second half of the XX century an authentic revolution was begun in terms of contraceptive strategies that until that time were practically and exclusively based on male proceedings, such as the use of the condom and the coitus interruptus. This progress gave way to female contraception based on hormonal methods and on intrauterine devices. There is no doubt that medical advances in this field have been notable, although not the goal of this discussion.

The new millennium will require from men a progressive and greater implication in the responsibility of the couple’s contraception. The crucial factor in the development of any contraceptive method is to know its acceptability. In a study by Oddens a questionnaire was passed among 450 men and 450 women, 66% of men accepted the “male pill”. Among women, 69% thought they would not disagree in that their couples assumed the contraceptive responsibility. Only 3% of women rejected such a system of contraception, with the premise that they could not go on trusting their couples’ fidelity, without taking to account that their couples can buy condoms at each corner at very reasonable prices [6].

2.5. Sexuality and gender identity

One of the novelties that brought the latter part of the past century was that sexual behaviors previously considered “antinatural” or abnormal, as homosexuality, started to be accepted, not without reserves at the beginning. This happened ignoring the fact that in many tribal cultures, even today, such behaviors are well accepted, permitting sexual games between men [4] with certain limitations, especially dealing with sodomy, which generally is not allowed [8]. No doubt sex is transmitted and inherited genetically, which traditionally made believe that there was a perfect synchrony between the individual’s appearance and his sexual identity. In the second half of the past century it became more accepted that sexual behavior or identity does not necessarily need to match with that determined and expressed by chromosomes or phenotype. At this time, it began to be recognized behaviors such as homosexuality and transexuality, realities that are suspected to have a possible hereditary factor. Nowadays, it is inferred that the importance of this factor oscillates between 31–70% in men and 27–76% in women, and has been associated with the X chromosome [7]. This acceptance has not been easy because of the elevated socio-cultural and emotional weight implied in sexual identity, which makes it complex to modify, on a personal basis that is, within the same individual, as well as on a social context [1].

However, the new millennium is starting with a very different perspectives, and homosexuality is reaching a social recognition that right now allows and legalizes, in many countries, the unions among individuals of the same sex. They have been recognized the same vinculations, obligations and rights of heterosexual marriages, which creates a new “family units”, that are overcoming some logical and natural restrictions, as their capacity to procreate with the possible resource of gamete donation for inseminations, the use of “wombs for rent”, or even their legal right as formal couples to adopt, thus surpassing what only a few decades ago, were considered unsurpassable limitations.

Transexuality is not something new, since in ancient times, i.e. Hellenistic periods, it was known that some individuals do not assume their apparent and genetic sex, identifying themselves with those of the opposite sex, and in many cultures this was always accepted. However, actually the term “transsexual” was first used around the 1940s, describing those individuals that wish to live permanently as members of that gender opposite to their own one, inherited phenotypically. As a benefit for this group technological and scien-
Scientific developments of the past century have permitted that the great advances in the synthesis of new and more potent hormones together in perfect symbiosis with the spectacular advances in plastic surgery, and with the development of better and more sophisticated prosthetic devices, have favored the construction of this new sexual figure. The transsexual nowadays has an authentic physical appearance, as desired, and an acceptable genital appearance, of the sex that the individual has chosen, especially true in the conversion of man to woman.

Since the beginning of these sexual changes to date, the degree of social understanding has been evolving progressively, reaching better quotas in their social acceptance as well as their legal recognition. Thus it has been possible for them to abandon prostitution, more or less exotic, as their only professional alternative and to achieve a dignifying way of life some even have attained a good position as artists and models.

2.6. The concept of “metrosexual”

The origin of the term traces to an article titled “here come the mirror men,” dissecting the new urbane man by Mark Simpson, published on 15 November 1994 in The Independent, a major British daily newspaper. Barely any usage of the term in print publications can be found in the same decade [9].

As we have previously pointed out the individual’s appearance plays a predominant role in sexual attraction. Initially it was more fundamental for females, who had to attract the males’ interest, but in the last decades it seems to be a certain change in roles, which has favored the development of a new image industry. This new industry works to create a series of cosmetic products capable of highlighting physical appeals and to hide defects. Moreover, it also works counseling how to improve appearance, that is the best looks, so as to “sell” anyone better in whatever circumstance.

This changing world does not conform with simple touches consequential to the application of cosmetics, but it is overcoming boundaries, allowing for the resource of different treatments including hormonal, surgical, tattooing, UV rays. These treatments not long ago were tolerated and accepted only for women. However, nowadays modern men consume it without embarrassment giving through a new image of the attractive male that sometimes seems to be a similarity or ambiguity between both sexes. And, every so often, it seems to go beyond interchanging roles given to each gender, which some have called the “metrosexual” man [9]. Numerous men decide and tolerate long sessions of depilation that includes any area or their entire powerfully built anatomy, pedicure, manicure, massages, beauty treatments, etc. [10].

A new society is being born that not only looks for a healthy and attractive body; it goes further, creating an authentic mystification and worship of the body. At times, that physical appearance may open or discard professional options that initially should relate little or nothing with the looks of the person that applies to fulfill a position.

In summary, the typical metrosexual is a young man with money to spend, living in or within easy reach of a metropolis—because that is where all the best shops, clubs, gyms and hairdressers are. He might be officially gay, straight or bisexual, but this is utterly immaterial because he has clearly taken himself as his own love object and pleasure as his sexual preference.

In the latter part of the past century, there has been a progressive fall of what we could call conventional or traditional sexual morality, adjectives that are quite inappropriate to describe what authoritarian behaviors, frequently protected by false hypocrisy were. In recent times, this severe attitude has been changed transforming what was before considered to be unacceptable, wrong, harmful, perverse or even depraved in accepted without other judgment or moral connotations, as it is the case of masturbation, oral sex or premarital sex.

2.7. Sexuality and advertising

Audiovisual industry has played an important role in the impressive change observed in sexuality during the XX century. This field has dramatically progressed in the last 50 years due to the great diffusion of television, which has highly developed the influence that the movies had initially, together with the reinforcement of music stars and fashion figures, clearly supported by the creation of the so-called “brands”.

The film industry has become prolific in scripts with a bizarre combination of violence, eroticism and sex. Television encourages a permissive image, when not libertinism in its characters. Those situations explain the design and development of reality shows that intend
to evidence the most intimate lifestyle of its protagonists. These lives in general have little to do with the majority of individuals but help to create situations in the context of false realities.

The world of fashion and advertising has favored the appearance of graceful and almost vapory images of striking models that many times could be described as young anorectics. These models go on parade showing insinuating transparencies that will never be seen worn by a normal person in its normal life or even in the most sophisticated of parties. These models seem to transmit the sense of a false sexual liberty and the image of unattainable beauty.

In the world of advertising there is no doubt that attractive bodies, insinuating and half naked, have a better chance at selling products. This goes almost to extremes when its presence seems to be necessary, and at times achieves the opposite effect. At so much physical beauty the observer is captivated and pays no attention to the product being advertised.

2.8. New sexualities, the role of mass media and new technologies

The last century was marked by important advances in technological inventions and as expected, sex was not the exception. Sex also contributed with a series of notable novelties or “inventions”. In the global village with super-specialized markets, shops devoted to sex paraphernalia, or “sex shops” are a new deal opportunity. Herein the influence of most industrialized countries is also evident, where these shops dedicate solely to sell the most sophisticated sexual items that guarantee an excellent individual sexual response, to diminish or augment his/her fantasies and sexual desires in company or alone.

Another sexual innovation of this era is the so-called “phone sex”, that puts the sexual and erotic stimulus at reach of the overwhelming fantasy of who consumes it [11], especially teenagers and individuals of special mental conditions. It could be considered to be at least a peculiar group of consumers, but as a business it represents great incomes for those “managers” that make these networks function.

A new lifestyle “discovery” of the past century was tourism. Tourism becomes available with the economic stability of industrialized countries together with the development of modes of transport in general and air transport in particular. This allows massive moving of people to visit beautiful cities or paradisiacal landscapes generating new adventures and types of tourism. This is the case of sexual tourism, for men and women as well, allowing for real sexual paradises. In a short period of time this type of tourism has gained numerous public, which hides the real dramatism of this industry that imposes a new type of exploitation and slavery. This type of tourism has received much acceptability in the majority of developed countries.

The AIDS epidemic expands at the end of twentieth century in a devastating way causing tragedy in developing countries. Among these stand out the so-called sexual paradises, this has supposed a great limitation to the expansion of this type of tourism. Nevertheless, there is no doubt that this industry still has a big market and demand from clients, masculine and feminine, homosexual and heterosexual.

The global development of computerization has acquired great expansion in a few years opening the possibility to cibersex or sexuality by internet. This has favored the bang of development of erotic and sexual content web pages. The easy access for any user gives way to a progressive isolation, since individuals do not need to call anyone or go out to the street to try to find a partner as they achieve their stimulus and resolution in home intimacy.

3. Sexual dysfunction

3.1. Female and male sexual dysfunction

One of the first innovations of the XXI century was the concept that sexuality has not an age restriction. There is a tendency in developed countries for prolonged life expectancy with better quality of life, which conveys a good maintenance of capacities such as physical, psychological, and sexual. This progress facilitates the recognition by WHO in 1992 of sexual dysfunction as a pathology that can affect man and woman.

The study of erectile dysfunctions was put forward in a scientific way at the beginning of the nineties. In 1993 took place the first International Conference for Consensus on Erectile Dysfunction, where this dysfunction was defined as “the incapacity to achieve and
maintain a penile erection enough to attain satisfactory sexual relations”. At this time, impotence, a word with negative and disrespectful connotations was abandoned.

It is clear that to consider erection as the only possibility to establish or to maintain a sexual intercourse is an error or mystification; however, there is no doubt that it plays an important role. For this reason, the development of sildenafil, so-called “the blue miracle” or “the blue pill of happiness”, marks the beginning of a new era, determining a before and an after. The social impact of the start marketing of sildenafil was renowned, not only due to commercial strategies, as some authors have suggested [12], but because it came to satisfy a silent social demand. This demand has favored the appearance of new drugs, such as apomorphine, verdenafil or tadalafil, substances that are just the first of the top of an iceberg of a wide variety of therapeutical options [13]. On the opposite is the concept that pharmaceutical companies are actively involved in sponsoring the definition of diseases and promoting them to both prescribers and consumers transforming the social construction of illness by the corporate construction of disease [12].

These strategies directed to masculine problems will be incomplete if feminine sexual dysfunction is not addressed in a serious way [14]. This problem is hidden very often [15], probably due to a “masculinist” historical perspective of sexuality enhanced by a false sense of modesty. This situation is favored by the fact that female sexual response can be more passive and does not always require such an evident and active attitude as male erection.

3.2. Prevalence of female sexual dysfunction during menopause

In general, sexuality has been reported to be impaired after the onset of menopause [22–24]. The estimated percentage of sexual dysfunction among women in the United States ranges from 25% to 63% being postmenopausal women the most affected [16,25]. Studies in other countries have demonstrated higher percentages of female sexual dysfunction ranging from 51.3% in Chile to 78.4% in Ecuador [14,15,17]. Evidence suggests a decline in sexual interest, frequency of sexual intercourse, and vaginal lubrication in association with menopause [14,15].

Data for variables such as capacity for organism, satisfaction with sex partner and vaginal pain or discomfort are scant and mixed [26–28]. On the other hand, there have also appeared comments in medical journals suggesting that female sexual dysfunction does not exist and that it is only a fantasy of some professionals, supported by the pharmaceutical industry [12,18]. However, the evidence supporting feminine sexual dysfunction is clear being the disorder defined as the “continuous incapacity to achieve an adequate and sufficient lubrication and genital congestion that allows a satisfactory sexual response to a sexual stimulus” [19].

Prevalence of sexual disorders during the menopausal transition clearly depends on ethical background [22,23,29,30] and increases with age [14,17]. Sexual arousal and interest, and frequency of sexual activity decline with aging [31]. In addition, the prevalence of hypoactive sexual desire disorder (HSDD) is higher in young surgically postmenopausal women than in age-matched premenopausal women. HSDD is associated with emotional and psychological distress and with significantly lower sexual and partner satisfaction. HSDD has also been related to significant impairment in general health status, including aspects of mental and physical health [32].

Equal to male erectile dysfunction some authors have attributed female sexual dysfunction to solely psychological causes [20]. Psychological aspects play an important role in sexuality, even more in women, but it would be exceedingly simplistic to ignore other possible etiologies such as hormonal or physical [13]. In surgical castration, sexual dysfunction is often associated with a certain degree of asthenia, depression and even loss of self-esteem [21].

3.3. Treatment of sexual dysfunctions

Before to start any treatment it is important to emphasize that impairment in sexual activity or frequency only becomes a dysfunction when distresses the patient. Non-pharmacologic and pharmacologic therapies are available to treat sexual dysfunction in women and both should be considered in a basic approach.

Non-pharmacologic therapy includes providing information and education about normal anatomy, sexual function or normal changes of aging, lifestyle changes such as well-balanced diet, smoking cessation and exercise, strength improvement of the pelvic
floor muscles, enhance tactile stimulation and eliminate routine.

Pharmacologic therapy may include sexual steroids, sildenafil, dopaminergic drugs, prostaglandins, melanocyte-stimulating hormone, \( \alpha \)-adrenoceptor antagonists, herbal therapies and other substances in development [13].

Among sexual steroids, estrogens may improve sexual function restoring the anatomical changes due to menopausal related hypogonadism. A benefit in postmenopausal women with sexual dysfunction has demonstrated in some [33,34] but not all [35] studies with estrogens. Tibolone may increase vaginal lubrication, arousability and sexual desire [36] and improved sexuality significantly to a greater extent than estrogen therapy alone [26]. Finally, the combined use of testosterone with postmenopausal hormone therapy improves sexual function scores [37].

Pilot studies on use of sildenafil demonstrated positive effects in sexual arousal and orgasm in selected women; however, placebo controlled studies in female with sexual arousal disorder gave negative data [38]. Actually, sildenafil use has not been approved for female sexual arousal disorder.

Patients who received bupropion, a dopaminergic drug used for Parkinson’s disease, for the treatment of sexual adverse events induced to treatment with SSRI reported experiencing an increase in libido [39].

Finally, there are scant data on efficacy or safety of other substances used for the treatment of female sexual dysfunction such as melanocyte-stimulating hormone, L-arginine, phentolamine, apomorphine or herbal therapies.

4. Last remarks

The reproductive future of the human species does not appear to be promising. As a matter of fact is quite poor. Similar to other animal species, like plasmodia, termites, bees or ants, as social organization is improved, the number of individual reproductors diminishes [2]. Many naturists anticipate that humanity will evolve towards a species made up of populations with a reduced number of fertile individuals and a majority of sterile ones. Recent data suggest a progressive deterioration in the quality of semen in the majority of developed countries [40].

Our society has already started the separation between sex and reproduction. Religious restrictions, contraception, planned abortions, increasing subfertility, gamete donations and assisted reproduction techniques, are altering the natural process that linked sex to reproduction. Moreover, the modern and highly sophisticated systems of communication and image transmission favor sex in solitary being the possibility of sexual isolation of the individual a reality. In the near future the confluence of both contexts will be more frequent. Thus, ever more in love with technology humanity will head towards apomyxis [1], where sexual activity with other individuals will be more important for communication than for reproduction [1].

Scientific advances in biotechnology, especially in genetic engineering, might facilitate to have children à la carte modifying those genes responsible for the predisposition to suffer certain diseases, or discard certain embryos favoring eugenics. Additionally, by means of genetic manipulation could be possible to choose certain physical characteristics of the future child. Furthermore, in the early 1980s the general consensus supports the technical and biological impossibility to clone a mammal from adult cells [41]; however, few years later born Dolly the sheep in 1997 [42]. All of this that today seems science fiction can become reality in an unpredictable—probably short period of time due to the scientific and technological progress. Every one of these scenarios may have unexpected consequences in the human species, affecting even its own nature.

Female sexual dysfunction affects a high percentage of postmenopausal women. The complexity of sexual dysfunction in women makes the diagnosis and treatment very complex. Disorders of desire are difficult to treat while others such as vaginismus or orgasmic dysfunction easily respond to therapy. The research on female sexual dysfunction is an emerging topic where new definitions and models for female sexual response are rising. Finally, it is essential to clinicians to become particularly familiar with all the complaints affecting elderly people including this topics related to sexuality and this task involves knowledge as well as sensitivity.

**Conflict of Interest**

The authors confirm that there is no conflict of interest.
References