
Sexual dysfunction in old age

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The sexual behaviour of older people is more often the target of jocular or ridicule than the subject of serious scientific research. As a consequence, relatively little is known about the sexual behaviour of the over-65s and such information as is available shows a polarisation according to gender, male sexual behaviour and dysfunction being viewed very much in the light of physical problems, whereas women's sexual behaviour revolves around attitudes towards sexuality and the psychological effects of ageing. This review will address the biological changes associated with ageing, the psychological and social concomitants, the prevalence of sexual dysfunction, its aetiological factors, and the management of common sexual problems including those found in an institutional setting.

Biological changes

Masters and Johnson described the physiology of coitus as having four components. Excitement, plateau, orgasm and resolution, all of which show age related changes. As ageing increases, desire may not always result in sexual excitement. The triggers for sexual excitement become more specifically sexual and may require intimate body contact and manual stimulation. The intensity of sexual fantasies decreases and it may take a man longer to achieve an erection and following ejaculation more time before an erection is possible. The physiological changes are listed in Box 1. In addition, older men experience anatomical changes, including thinning of the pubic hair, laxity of scrotal tissue, atrophy of the perineal muscles, loss of collagen tissue and occasionally

weight gain. The phase of ejaculation undergoes changes which result in a decline in the intensity of orgasm and in the propulsive force of ejaculation. The volume of the ejaculate may be reduced by 50%. Sex drive and performance vary widely between individuals of the same group and the maintenance of sexual activity depends on factors such as regular sexual activity, the presence of a willing sexual partner, the absence of a major physical illness and the integrity of the relationship.

Age-related changes in women (see Box 2) include thinning of the pubic hair, shrinkage of the labia, thinning of the vaginal mucosa and laxity of the perineal muscle. The thinning of the vaginal mucosa and the reduced lubrication may lead to dyspareunia and bleeding during intercourse. Orgasmic contractions may become painful.

The ageing male experiences a reduction in the activity of the cells of Leydig with an associated drop in testosterone of 0.4–0.8% per year after the age of 50. Interested readers are referred to a

Box 1. Physiological changes in ageing men

Sexual organ atrophy
Diminished testosterone level
Delay in attaining erection
Erection of poor quality
Longer delay in achieving and maintaining a full penile erection
Decline in intensity of orgasm
Decreased hormone levels are associated with reduced desire

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Box 2. Physiological changes in ageing women

Changes are secondary to declining secretion of oestrogen after the menopause
 Loss of elasticity in breast tissue and loss of breast dimensions
 Cervix and uterus shrink in size
 Walls of the vaginal canal atrophy and vaginal length and width decrease
 Decrease in vaginal lubrication
 Sex steroid starvation may indirectly affect sex drive

comprehensive review of this topic and its relationship to depression by Seidman & Walsh (1999).

Psychological changes

Ageism prevails in most Western societies. Social attitudes and beliefs that consider sexual behaviour as inappropriate, repugnant or abnormal in old age will contribute to the curtailment of such behaviour. Older people have a difficult task in coming to terms with the decline in physical attributes, sexual potency and attractiveness. All too commonly they adopt negative attitudes towards their sexuality. A study in Finland (Paunonen & Hagmann-Laitila, 1990) found that more than half of 50 residents in a nursing home did not consider it proper for older people to have an active sex life; 25% felt that sexual needs and desires were sinful and shameful. Fewer than a quarter of the respondents were prepared to talk to the staff about sexual matters.

Factors other than social constraints, such as a disturbed relationship, physical fatigue and infirmities, psychological problems and economic worries, will also militate against a regular sex life.

Patterns of sexual behaviour

A number of factors have been identified as important in the maintenance of sexual activity. Good physical health, the availability of a partner, and a regular and stable pattern of sexual activity earlier in life predict the maintenance of sexual activity in old age. The proportion of sexually active married people declines from 55–60% in 60- to 74-year-olds to 25% in the over-75s.

Older women were brought up to prize modesty and they are reluctant to complain of sexual problems. A survey relating to urogenital ageing in 2045 people aged between 55 and 85 found that no more than 11% were affected at any one time (Barlow *et al*, 1997). Of that group, 73% were sexually inactive. Of the 11% affected, only one-third sought professional advice, whereas 36% resorted to over-the-counter remedies and 33% did not seek help. Bachmann's (1990) study of 59 healthy post-menopausal women aged 60–70 reported that 66% were coitally active and 34% were abstinent. The active group reported more sexual interest, greater sexual satisfaction and on pelvic examination were noted to have less genital atrophy. Little information is available on the sexual behaviour of older women in other cultures. A study on Chilean women reported that 40% of women over 60 were sexually active (Gramegna *et al*, 1998). The sexual adaption of women following the loss of their marital partner has been studied (Malatesta *et al*, 1988). Increasing age of the widow was associated with less unhappiness with loss of marriage-related activities. What the older woman missed most could be expressed as non-sexual heterosexual activity, such as the social company of a man.

Older men report more interest in sex than women do. Most studies find that the most important factors in the maintenance of sexual activity are the availability of the partner and good physical health. A study of 81 healthy married men aged 60–71 with no physical illness, no psychopathology and no marital problems found that 36% of the sample suffered from erectile failure. Ageing was associated with a decline in the frequency of sexual intercourse and an increase in the frequency of masturbation (Weizman & Hart, 1987). A sample of 319 men aged 50–80 were surveyed by a postal questionnaire, revealing that physiological potency for men aged 50–59, 60–69 and 70–80 amounted to 97%, 56% and 51%, respectively (Feldman *et al*, 1994). Among the oldest men (70–80 years) 46% reported orgasm at least once a month. Braehler & Unger (1994), surveying a group of 450 elderly men and women who still had a partner, found that 65% of people aged 61–70 and 33% of those aged over 70 engaged in sexual activity. In a study in Massachusetts, 15% of 70-year-old men were completely impotent and 34% moderately impotent. The problem was associated with a significant number of physical and medication problems (Feldman *et al*, 1994).

Few studies have looked at the general population living in the community and relatively little is known about the wider aspects of sexuality, such as intermittent physical contact, masturbation and affection. One recent study reports that 72% of men

and 40% of women over the age of 65 engage in occasional masturbation (Bretschneider & McCoy, 1988). Other studies have looked at poor self-image and reluctance to talk about sex (White & Catania, 1982) and sexual difficulties associated with dementia (Haddad & Benbow, 1993).

Types of sexual dysfunction

A recently published sexual dysfunction survey in the USA involved 1410 men and 1749 women aged 18–59, of whom 79% took part. In women, 32% complained of a lack of interest in sex, 26% of an inability to achieve orgasm and 16% of pain during intercourse. Of the men, 31% complained of premature ejaculation, 18% of performance anxiety and, in the 50- to 59-year-old age group, erectile failure was present in 18%. Low sexual desire was associated with general unhappiness, and sexual dysfunction was strongly associated with unsatisfactory personal relationships (Laumann *et al*, 1999).

The DSM-IV (American Psychiatric Association, 1994) proposes seven categories of sexual dysfunctions. The first three are related to disorders of desire, arousal and orgasm. Categories four to six define sexual problems associated with pain, physical illness, and drugs and alcohol, and category seven defines disorders that are not otherwise specified. In older men, erectile failure is by far the most frequently encountered problem, whereas in older women loss of sexual interest and motivation is the main problem.

Older people do not seek help for their sexual problems for a variety of reasons. In my Sexual Problems Clinic in Edinburgh, out of a total of 3340 people seen over 25 years, only 54 patients were over the age of 65 and all of them were male (see Table 1).

Aetiology

Numerous factors contribute to a varied and complex aetiology. They include the biological changes of ageing, negative cultural expectations, medical or surgical problems, the effects of drugs, and mental illnesses such as depression, psychosis and dementia.

Physical disorders

Ageing is associated with an increase in the prevalence of chronic illnesses, in the number of

Table 1. Patients aged over 65 years seen at the Sexual Problems Clinic in Edinburgh (1974–1999) (total $n=54$, all male)

Dysfunction	Number presenting
Erectile failure	36
Loss of sexual interest	11
Paedophilia	5
Gender dysphoria	2

prescribed drugs and also in the likelihood of surgical procedures which have distressing physical and psychological sequelae. In addition, there may be damage to the vascular integrity of the genitalia and functional limitation of the pulmonary and cardiovascular systems. Illnesses that contribute to sexual problems in old age include cardiovascular problems, particularly hypertension, peripheral vascular disease, diabetes mellitus, renal failure, cancer, arthroses and neurological problems (Feldman *et al*, 1994) and the sequelae of various operations such as prostatectomy, hysterectomy, mastectomy and various ostomies. The effects of prostatectomy on sex function have been well studied. According to one study (Thorpe *et al*, 1994), prostatectomy is associated with major erectile failures in 12% and absent ejaculation in 24% of cases. The sexual dysfunction found in prostate cancer patients is largely due to the effects of treatment, with radical prostatectomy carrying the highest risk (Helgason *et al*, 1996). Finasteride, which is used in prostatic enlargement, is associated with loss of libido, erectile failure and reduced volume of ejaculate in 5–6% of men (Gormley *et al*, 1992).

Illnesses that result in disability, such as stroke and dementia, invariably lead to important changes in sexual behaviour (Boldrini *et al*, 1991). There is little evidence that post-stroke patients are routinely given an opportunity to discuss their sexuality openly with their physician. Changes in sexuality after a stroke are often due to a change in role function because of the increased dependency of the afflicted partner (Burgener & Logan, 1989).

Mental disorders

The most common mental disorders affecting older people are depression, dementia, delusional disorders and delirium. Sexual behaviour may change significantly in depression (Feldman *et al*, 1994) and dementia (Haddad & Benbow, 1993). Delusional disorder may be associated with pathological jealousy, which may cause severe distress to the other partner as well as endangering

his or her well-being. Sexual problems may be further compounded in this group of patients by the use of psychoactive agents.

Substance-induced sexual dysfunction

The effects of chronic alcohol misuse on sexual function are well recognised and will not be discussed in detail here (Wagner & Jensen, 1981). In small doses, alcohol acts as an anxiolytic and may improve performance, but larger doses will result in retarded orgasm and erectile failure. Drugs like cocaine and amphetamines increase sexual interest and activity initially because of their enhancing effects on mood and energy, but the long-term effects are usually detrimental.

Pharmacological agents and sexual dysfunction

There is a significant literature on the sexual side-effects of antidepressant drugs – one review (Ellison, 1998) cites 118 references. All types of antidepressants, including monoamine oxidase inhibitors, tricyclics and selective serotonin reuptake inhibitors (SSRIs) are implicated in a variety of sexual problems affecting libido, arousal and ejaculation. Depression *per se* is also associated with sexual problems and it is, therefore, important for clinicians to enquire carefully as to what specific phase of the sexual response cycle is affected. There are now specific diagnostic criteria for antidepressant-induced sexual dysfunction in DSM-IV, subsumed under category 292.89. It is likely that as up to 50% of patients treated with SSRIs may develop sexual dysfunction, mainly related to delayed or absent ejaculation or orgasm. These drugs may also be involved in erectile failure. Once an antidepressant-induced sexual dysfunction has been established, appropriate treatment may involve a reduction in the offending medication, a 'drug holiday' or a change to a different antidepressant. The antidepressants that are least likely to affect sexuality are nefazodone, mirtazapine and reboxetine. Occasionally, patients treated with SSRIs may report increases in sexual desire. The drugs implicated here are trazodone, bupropion and, much less frequently, venlafaxine, paroxetine and fluoxetine. Trazodone is the drug most frequently associated with priapism (Warner *et al*, 1987). This problem has also been reported with phenothiazines, butyrophenones and benzisoxazoles (Patel *et al*, 1996).

Antipsychotic drugs, however, have a predominantly depressant effect on sexual function through their effects on the dopaminergic system.

Non-psychotropic medication may also have a negative influence on sexuality. Anticonvulsants, antihypertensives, H₂ blockers and thiazide diuretics (O'Keefe & Hunt, 1995) as well as cimetidine, digoxin and metoclopramide (Guay, 1995) are known to cause erectile failure. A full discussion of this topic can be found in Ellison (1998).

Management of sexual dysfunction

Assessment of a sexual dysfunction requires a careful history from the client with a corroborative history from the spouse/partner. Hawton (1985) has summarised the important features of a sexual history as:

- (a) establishing a language that is mutually comfortable;
- (b) using a mixture of closed and open questions;
- (c) getting an accurate description of what is actually wrong;
- (d) taking a longitudinal perspective;
- (e) interviewing both partners jointly and separately; and
- (f) taking a medical history including a complete list of drugs that the client is taking.

Many older couples need accurate information about the physiological changes associated with ageing. Patient education is therefore an important part of the management of sexual dysfunctions (Bachmann, 1990). The range of treatments available comprises psychosexual counselling, hormonal therapy, drug treatment, mechanical devices and vascular surgery (Box 3).

Psychosexual counselling

This is an important aspect of any management plan since sexual dysfunctions, whatever the underlying cause, usually have a psychological overlay. It is,

Box 3. Treatment options

Basic education and advice
Psychosexual counselling
Hormonal therapy
Drug treatment
Mechanical devices
Vascular surgery

therefore, recommended that pharmacological treatment be combined with counselling.

Hormonal treatment

The use of testosterone supplements to treat the viropause (male menopause) is controversial. The proportion of older men with a significantly reduced testosterone level is low. Large epidemiological studies have shown that total testosterone remains steady until the age of 50 and then declines by approximately 0.4–0.8% per year (Gray *et al*, 1991). Administration of testosterone to eugonadal men leads to a small increase in sexual interest but it is no more effective than placebo in improving sexual dysfunction (Schiavi *et al*, 1997). On the other hand, there are numerous reports in the literature attesting to the benefits of androgen supplements in hypogonadal men. Libido, arousal and ejaculatory capacity all show improvements (Morley *et al*, 1993). The empirical use of exogenous androgens in eugonadal elderly men should not be encouraged as such treatments potentially could induce polycythaemia, worsen coronary artery disease and exacerbate benign prostatic hypertrophy (Seidman & Walsh, 1999).

In women the use of hormone replacement therapy (HRT) is widespread although still controversial. It reverses the physiological changes associated with sex steroid starvation. Post-menopausal women who suffer from loss of libido in addition to the physiological changes associated with oestrogen deficiency may benefit from the gonadomimetic tibolone.

Drug treatment (Box 4)

Oral agents

A variety of drugs have been used in the treatment of male sexual dysfunctions, including yohimbine, phentolamine, apomorphine, bromocriptine and trazodone. The availability of sildenafil has had a tremendous impact on the management of erectile failure. Sildenafil is a phosphodiesterase inhibitor and its success has tended to eclipse other forms of drug treatment. Sildenafil has been shown to be an effective treatment both in non-organic erectile failure (89% response at 50 mg) and also in the organic impotence secondary to diabetes mellitus, hypertension and neurological disorders.

Clinical experience suggests that men with psychogenic impotence respond well to 50 mg sildenafil, whereas 100 mg is more effective in organic impotence. The drug is rapidly absorbed, although the ingestion of food will delay absorption. It is safe and has relatively minor side-effects, the

Box 4. Drug treatment

Yohimbine

Oral phentolamine

Apomorphine sublingual tablets

Sildenafil

Intracavernosal injection of vasoactive drugs

Intraurethral insertion of prostaglandin (MUSE)

Use of vasoactive cream

main ones being headaches, flushing, dyspepsia, nasal congestion and abnormal vision. It is contraindicated in patients taking nitrates because of the danger of provoking severe hypotension. The possibility of a synergistic action between sildenafil and non-nitrate antihypertensive medication has recently been raised (Cohen, 2000), although an editorial reply (Kloner & Siegel, 2000) refuted this suggestion. Not every patient will respond to sildenafil and it is very unlikely that patients with severe vasculogenic impotence or cavernosal fibrosis will show a response.

Oral phentolamine has been tried in mild erectile failure and there is some evidence that the drug is beneficial in about 50% of cases (Goldstein *et al*, 1998). More recently, it has been used in female sexual arousal disorder in menopausal women. The results indicate a mild positive effect of phentolamine across all measures of arousal (Rosen *et al*, 1999). There are also anecdotal reports of the value of sildenafil in arousal disorders in women.

Premature ejaculation has been mostly treated by psychological methods such as the squeeze technique or the stop–start method. Over the years, there have been sporadic reports on the effectiveness of certain drugs such as thioridazine, clomipramine and the SSRIs. A recent study (Strassberg *et al*, 1999) suggests that clomipramine 25 mg taken as needed as little as four hours prior to sexual activity is of value in treating premature ejaculation.

Intraurethral drugs

Prostaglandin E₁ is used as an intraurethral pellet in a preparation known as MUSE (medicated urethral system for erection). In a large study involving 1511 men suffering from impotence due to a variety of causes, the improvement rate was 66%. Over an extended period, however, the results were less impressive (Padma-Nathan *et al*, 1997).

Topical creams

Most topical creams that have been used in erectile failure are smooth muscle relaxants and vasodilators. These include glyceryl trinitrate, minoxidil, prostaglandin E₁, as well as a triple cream containing aminophylline, isosorbide dinitrate and cordergocrine mesylate. Whereas the results with most of these have been disappointing, one study using the triple cream reported a 60% improvement rate (Gomaa *et al*, 1996). A recent study (Le Roux & Naude, 1999) was unable to reproduce the successful results reported earlier and they found no difference between the active cream and the placebo cream.

Intracorporal injection therapy

Since the early 1980s, a variety of drugs have been used effectively by intracorporal injection in the treatment of erectile failure. Papaverine, phentolamine, prostaglandin E₁ and moxisylyte, among others, have been tried. The most frequently used drug is now prostaglandin E₁ because of its favourable side-effect profile relative to the earlier preparations, which occasionally cause penile pain, bruising, hypotension, flushing, fibrosis and priapism. Although the response rate is about 65%, some studies have shown that there is a drop-out rate of about 25–40% over a two-year period. For a fuller discussion of this topic, see Eardley & Sethia (1998).

Mechanical devices

There are a number of these, the most popular being the vacuum constriction devices. Their use increased during the 1980s and for some time they were the most popular form of treatment for erectile failure, particularly in older men. In a large series of 1517 patients treated by this method, 92% were able to have an erection and 77% were able to have sexual intercourse (Witherington, 1989). There are conflicting data about the effectiveness of these devices when used over an extended period of time. The pros and cons of this type of treatment are fully discussed by Eardley & Sethia (1998).

Penile implants have been in use for over 40 years and different types of prostheses are available. Vascular surgery is occasionally used when arterial or venous abnormalities have been clearly demonstrated.

mental impairment of such a degree that it is no longer safe for them to live independently. In an institutional setting, sexual behaviour becomes linked to questions relating to privacy, attitudes of the nursing staff, and cultural expectations of other residents. Sexual disinhibition may be present in about 7% of cognitively impaired older people. There is an ongoing conflict between protecting patients' dignity and the patients' desire to fulfil their sexual needs. Nursing home staff as well as visitors or family may feel embarrassment when confronted with the sexuality of older people. Sometimes this may lead to older people being treated like children and being forbidden to have any sexual outlet. This, in turn, may provoke anger and frustration in the patients.

People with dementia may become less interested or more interested in sex. They may become more childlike and less subtle in their sexual demands. They may undress and/or masturbate in front of other residents or visitors. They may seek to engage other residents sexually. There is a conflict between supporting autonomous decision-making and protecting residents from abuse and exploitation. The resolution to the conflict is obviously easier if one or both partners, despite cognitive impairment, is aware of the implications of the relationship and able to decide whether they want to continue with the relationship or not. It is much more difficult if one or both partners is so cognitively impaired that they have no awareness of what they are doing. In such situations, it is important that the staff have the opportunity of discussing each client individually and involving their relatives/carers instead of adopting a blanket approach using pharmacological agents to contain such behaviour. There may be situations where, other methods having failed, it may be necessary to use drugs in order to inhibit undesirable or socially unacceptable sexual behaviour. Various agents have been tried and good results have been reported with SSRIs, anti-androgen therapy and oestrogen. The use of the oestrogen patch is an excellent treatment in the management of elderly men with dementia who suffer from sexual disinhibition. There are also isolated reports on the successful use of anti-androgens in elderly women with dementia who exhibit compulsive and antisocial sexual behaviour.

Sexual behaviour in institutional settings

A significant number of older people who require institutional care suffer from either physical or

Conclusion

Very few older people consult professionals because of sexual dysfunction. Epidemiological data are sparse and studies are usually not comparable

Box 5. Key points

Sexual problems are common in old age, but older people are reluctant to seek help

Sexual problems are associated with the biological changes of ageing, physical illness, the effect of various drugs and the negative sociocultural ethos

Older people need basic education and advice concerning their adjustment to age-related physiological changes in their sexuality

Pharmacological treatment is highly effective in erectile failure regardless of aetiology

Problems of sexual attitude and behaviour in institutions should be discussed openly

because of the differences in the sample groups. As life span increases and older people become healthier, they will have increasing expectations regarding their sexuality. Clinicians and professional helpers need to be aware of such problems, be ready to educate and advise older people on how best to adapt to physiologically altered responses and, in some cases, treat them by psychosexual counselling or chemotherapy as well as alleviate any physical problems.

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Multiple choice questions

- The following treatments have been shown to be effective in eugonadal men with erectile dysfunction:
 - vacuum constriction devices
 - testosterone
 - benzodiazepines
 - MUSE (medicated urethral system for erection)
 - sildenafil.
- Physical changes in ageing women include:
 - thinning of the vaginal walls
 - increased vaginal lubrication
 - shrinkage of the labia
 - a shorter period to become sexually aroused
 - painful contractions during orgasm.
- The preservation of an active sex life in old age is related to:
 - good physical health
 - readiness to seek medical advice
 - the availability of a partner
 - a regular and stable pattern of sexual activity earlier in life
 - economic affluence.
- Reduced sexual activity in older women is associated with:
 - inability to achieve orgasm
 - pain during intercourse
 - lack of interest in sex
 - performance anxiety
 - the use of hormone replacement therapy.
- Sildenafil is contraindicated in the following patients:
 - those on regular nitrates
 - those on insulin
 - those taking antidepressants of the SSRI type
 - those with sickle cell anaemia
 - those on benzodiazepines.

MCQ answers

1	2	3	4	5
a T	a T	a T	a T	a T
b F	b F	b F	b T	b F
c F	c T	c T	c T	c F
d T	d F	d T	d F	d T
e T	e T	e F	e F	e F