Impact of psychotropic medication on sexuality: literature review

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Abstract

Psychotropic medication continues to be a central element in the care and treatment of people experiencing mental health problems. Nurses have a key role to play in patient education and in monitoring the benefits and side-effects of prescribed drugs. However, evidence suggests that nurses tend to ignore or minimize side-effects that impact on sexuality and sexual function. The focus of this article is on exploring the literature on psychotropic medication and sexual dysfunction.

Key words: Psychotropic medication ■ Sexuality ■ Iatrogenic sexual dysfunction ■ Education

Although controversial, the use of prescribed drugs is considered, by some, an essential part of the treatment of many people with mental health problems (Fortier et al, 2000). Medication treatments are based on the premise that mental distress is largely a function of some underlying pathology of the brain – some biochemical imbalance that has yet to be explained or demonstrated (Barker and Buchanan-Barker, 2005). Currently, antidepressant, antipsychotic and anticholinergic drugs form part of the treatment plan for many people with mental health problems (*Box 1*) (Schizophrenia Ireland, 2002). However, these drugs have many adverse side-effects, which can severely impact on the quality of life of the client and add to the burden of distress.

Nurses are often the professionals closely associated with the administration of psychotropic medications. Given the potential hazards associated with these medications, and the increasing numbers of medications prescribed, nurses have a critical role to play in educating and supporting clients and in monitoring both therapeutic and non-therapeutic effects. Nurses also have a substantial role in ensuring that clients are able to make informed consent to treatment. For patients to make an informed choice, they must be given adequate and balanced information on the purpose, likely benefits, and risks of the treatment, including the likelihood of its success and any alternative options (Usher and Arthur, 1998).

Research suggests that nurses tend to focus on the extrapyramidal and anticholinergic side-effects of psychotropic medication (*Table 1*) and ignore or minimize effects that impact on sexuality and sexual function (*Table 2*). When asked, nurses suggest that there are a number of reasons for this, including: lack of education about sexual effects, lack of comfort in talking about sexual issues, and an erroneous belief that there is an inverse relationship between education on sexual dysfunction and compliance with medication (Higgins et al, 2006). Lack of time to monitor side effects has also been identified as an issue for community nurses in other studies (Jordan, 2002; Patel et al, 2005). This lack of emphasis on the impact of drugs on sexuality is also reflected in the nursing

Box 1. Use of antidepressant, antipsychotic and anticholinergic drugs in the treatment of mental health problems

Antidepressants

Antidepressant drugs are effective in the treatment of moderate and severe depression. These drugs interfere with the action of the neurotransmitters norepinephrine, serotonin and sometimes dopamine.

Antipsychotic

Antipsychotic drugs are also known as 'neuroleptics'. Antipsychotic drugs are used in the treatment of people with a diagnosis of schizophrenia, mania, toxic delirium or agitated depression. They are also used as a short–term measure to alleviate severe anxiety. Antipsychotic drugs inhibit dopamine activity, by blocking the dopamine D2 receptors in the hypothalamus.

Anticholinergic

Anticholinergics are a class of medications used to treat the extrapyramidal side-effects (EPSEs), such as drug-induced parkinsonism, akathisia and akinesia. The site of action for relieving EPSEs is the central nervous system. Anticholonergic drugs inhibit parasympathetic nerve impulses by selectively blocking the binding of the neurotransmitter acetylcholine to its receptor in nerve cells.

Source: Keltner et al (2003)

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Table 1. Extrapyramidal and anticholinergic side-effects

Extrapyramidal sypmtoms	Anticholinergic
Akathisia	Dry mouth
Akinesia	Decreased tearing
Dystonia	Dry nasal passages
Tardive dyskinesia	Blurred vision
Drug induced parkinsonism	Urinary hesitance and retention
	Constipation
	Tachycardia

Souce: Keltner et al (2003)

literature, where emphasis is placed on the extrapyramidal symptoms (EPS).

Effects of antidepressants on sexual function

Although the reported incidence of sexual dysfunction associated with individual antidepressant medication varies considerably, treatment-emergent sexual dysfunction has been reported with virtually all antidepressant medication. Rothschild (2000), in a review of research studies on antidepressants and sexual function, concluded that 40% of people taking antidepressants will develop some form of sexual dysfunction. In a multicentre, prospective Spanish study involving 1022 people, Montejo et al (2001) reported a 59% overall incidence of sexual dysfunction when all antidepressants were considered as a whole. Men reported a slightly higher frequency of sexual dysfunction than women (62.4% vs 56%). The incidence of sexual dysfunction with selective serotonin reuptake inhibitors (SSRIs) (citalopram) and a serotonin and noradrenaline reuptake inhibitor (SNRI) (venlafaxine) were high, ranging from 67% (venlafaxine) to 73% (citalopram). The range was similar (58–70%) for fluoxetine (Prozac®), sertaline (Lustral), fluoxamine (Faverine®) and paroxetine (Seroxat®). This compared with a much lower incidence for the newer serotonin-2 (5-HT2) blockers (8% for nefazodone (Serzone®) and 24% with mirtazapine (Zispin®). Moclobemide (Manerix®), a reversible monoamine-oxidase inhibitor (MAOI) resulted in the lowest incident of sexual dysfunction (4%). Other studies estimated that the incidence varies from 30% of people treated with imipramine (Harrison et al, 1986) to 25–70% of people treated with an SSRI (Kennedy et al, 2000; Ekselius and von Knorring, 2001), with 93% of people treated with clomipramine (Anafranil®) complaining of total or partial anorgasmia (Monterio et al, 1987).

The sexual problems reported with antidepressants include: decreased sexual desire, decreased sexual excitement, diminished or delayed orgasm, as well as erection and delayed ejaculation problems. Painful ejaculation has been reported

Table 2. Impact of psychotropic drugs on sexuality and sexual function

Drug groups	Men	Women
Conventional neuroleptics (e.g. phenothiazines, butrophenones, thioxantines)	Erection difficulties (difficulty in achieving or maintaining an erection, including morning erections)	Desire and arousal problems. Poor vaginal lubrication. Diminished organism or anorgasmia.
Atypical antipsychotics (e.g. olanzapine, risperidone, clozapine)	Ejaculatory difficulties (reduced ejaculatory volume, retrograde ejaculation, delayed ejaculation or total inhibition of ejaculation) Gynecomastica Galactorrhoea Breast discomfort Weight gain Fatigue Sedation Priapism (engorgement of the penis – must be treated as a medical emergency)	Menstruation changes (irregular menses, amenorrhea or mennorrghia). Gynecomastica Galactorrhoea Breast discomfort Weight gain Fatigue Sedation
Antidepressants	Erection and delayed ejaculation problems, painful ejaculation. Decreased nocturnal erections Galactorrhoea Loss of sensation in the penis (mainly associated with fluoxetine).	Decreased sexual desire Decreased sexual excitement Diminished or delayed orgasm Loss of sensation in the vagina, and nipples (mainly associated with fluoxetine
Anticholinergic	Erectile dysfunction	Decreased vaginal lubrication

(Source: Higgins, in press)

in association with a variety of antidepressants, including the tricyclics, SSRIs and MAOIs (Aizenberg et al, 1991; Demyttenaere and Huygens, 2002). In addition, decreased nocturnal erections (Kowalski et al, 1985), galactorrhoea (inappropriate secretion from the breasts between episodes of breast feeding or after weaning) (Egberts et al, 1997), and, although rare and mainly associated with fluoxetine, loss of sensation in the vagina, nipples and penis have also been reported (Neill, 1991; Michael and Mayer, 2000). In more recent publications there was mention of a relationship between the withdrawal of SSRIs and the onset of persistent sexual arousal syndrome in women (Freed, 2005; Leiblum et al, 2005).

The difficulty in separating sexual dysfunction issues resulting from the depression and those resulting from the drugs is an issue in studies, as depression itself is associated with decreased libido, decreased sexual activity and decreased erectile and orgasmic excitement. The variation in rates between studies is possibly also due to different assessment methodologies, study populations, duration of study and difference in drugs. However, Kennedy et al (2000) suggested that the difference in rates was due to under-reporting, rather than under-occurrence.

Effect of conventional and atypical neuroleptics on sexual function

All conventional neuroleptics (phenothiazines, butyrophenones, thioxanthines) can lead to sexual dysfunction. The reported rates of sexual dysfunction in people treated with conventional neuroleptics ranged from 45–60% in men to 30–93% in women (Teusch et al, 1995; Wallace, 2001). Sexual difficulties reported by women included: arousal problems, poor vaginal lubrication, anorgasmia, irregular menses, amenorrhoea and menorrhagia (Tran et al, 1997; Smith et al, 2002). In men, sexual dysfunction problems reported included: difficulty in achieving an erection (including morning erections), and complete inability to achieve and maintain an erection sufficient for penetration. In addition, ejaculatory difficulties, such as reduced ejaculatory volume, retrograde ejaculation, delayed ejaculation or total inhibition of ejaculation, were also reported (Bhui and Puffel, 1994; Smith et al, 2002). Isolated incidents of priapism have also been reported. Both women and men have reported gynaecomastia, galactorrhoea and breast discomfort. In addition, other adverse effects, such as fatigue, sedation, EPS and weight gain can also reduce sexual desire and impact on sexuality (Baldwin and Mayers, 2003).

The atypical antipsychotics, including olanzapine (Zyprexa®), risperidone (Risperdal®) and the atypical drug clozapine (e.g. Clozaril®), when compared with the older antipsychotics were considered to be more effective in the treatment of positive symptoms and have a significantly lower incidence of EPS and sexual side-effects (Higgins et al, 2005). While risperidone was known to be associated with galactorrhoea (Gupta et al, 2003), both olanzapine and clozapine were considered to cause fewer sexual side-effects as they had a negligible effect on prolactin levels due to their weaker dopamine binding capacity. However, Mendhekar et al (2004) reported on an incident of olanzapine-induced galactorrhoea in a female client and there are an increasing number of case reports of retrograde ejaculation and priapism with all three drugs (Compton et al, 2000; Jagadheesan et al, 2004).

Anticholinergic drugs

Anticholinergic drugs are frequently used to treat acute parkinsonism, dystonia and akathisia, which have been found to respond to this group of drugs. However, sometimes they are used prophylactically to prevent the onset of these EPS, although data to support their use prophylactically are weak. In addition, Gray et al (2005) found evidence on inappropriate administration, for example to treat dry mouth, blurred vision and restlessness, which, in fact, they cause. While anticholinergic drugs do diminish some side-effects, they can cause erectile dysfunction in men and a failure of vaginal lubrication in women (Barnes and McPhillips, 1996).

Cause of sexual dysfunction

The biological view of sexuality suggests that sexual function involves a complex interplay of neurotransmitters, hormones and peptides that act both centrally and peripherally. Fortier et al (2000) highlighted that current scientific knowledge regarding sexuality cannot fully explain the neurophysiology, neuroendocrinology and psychological mechanism induced by drugs. In most cases, side-effects that impact on sexual function are idiosyncratic and unpredictable with no apparent relationship between the type of drug used, dose and the incidence of a specific sexual dysfunction (Fortier et al, 2000). Many drugs act both on the peripheral and central nervous systems and it is sometimes not possible to know which action is responsible for the sexual side-effects. However, it is thought that drugs that enhance serotonin or decrease dopamine tend to diminish sexual function and desire. In addition, drugs that block the cholinergic and alpha-adrenergic receptors have 'asexual properties', in that they too have a negative impact on sexual function (Keltner et al, 2002; Baldwin and Mayers, 2003).

As the name suggests, selective serotonin reuptake inhibitors block the reuptake of serotonin, thus increasing the amount of serotonin in the synaptic area which inhibit the mechanistic aspects of the nervous system responsible for erection, vaginal lubrication, ejaculation and orgasm (Keltner et al, 2002). Anticholinergic drugs work by inhibiting acetylcholine (ACh), thus preventing its stimulation of the cholinergic pathways. In contrast, neuroleptics inhibit dopamine activity by blocking the dopamine D2 receptors in the hypothalamus, thus, the dopamine inhibiting effect on prolactin is reduced or abolished, and plasma levels of prolactin are increased (Melkersson et al, 2001). Baldwin and Mayers (2003) found that elevated prolactin levels resulted in amenorrhoea and decreased levels of arousal and desire in women, plus gynecomastica and galactorrhoea in both men and women. In a study of people taking neuroleptic medications, Smith et al (2002) found that anticholinergic side-effects were particularly associated with erectile dysfunction and anti-

adrenergic side-effects were associated with abnormal ejaculation. However, when men had hyperprolactinemia, these relationships ceased to exist, suggesting that when men became hyperprolactinemic, it was the hyperprolactinemia that was the likely cause of their sexual dysfunction.

Pregnancy and psychotropic drugs

Research has demonstrated that all psychotropic drugs readily cross the placenta. The major time of danger for teratogenic effect from any drug is the first trimester of pregnancy; and they should be avoided, if possible. Antipsychotics have been documented to have a small risk of congenital abnormalities. They also cause EPS and difficulty in oral feeding in some newborns, although these tend to diminish quickly. Theoretically, anticholinergic drugs will diminish milk flow during lactation, while the risk to the fetus from tricyclics and SSRIs has not been established (Ward et al, 2007).

Gregoire and Pearson (2002) reported on four cases of unplanned pregnancy in women who had been changed from older, typical oral or long-acting antipsychotics to atypical drugs. They suggest that this can be explained by the loss of the contraceptive side-effect produced by the drug-induced hyperprolactinemia in these women. Baldwin and Mayers (2003) also commented on the efficacy of atypical neuroleptics in relieving both positive and negative symptoms, thus having favourable effects on interpersonal relationships, sexual interest and activity.

Treatment of iatrogenic sexual dysfunction

Different strategies to treat drug-induced sexual dysfunction have been reported. However, the search for a treatment is in it infancy. Strategies reported include: wait-and-see, dose reduction, drug holidays, switching to 'sex friendly' antidepressants, plus the addition of a range of other drugs (Labbate et al, 2003; Rudkin et al, 2004). Spontaneous resolution of iatrogenic-induced sexual dysfunction rarely occurs, therefore, the wait-and-see technique is of limited value. If dose reduction does not adversely effect or compromise the therapeutic benefit or efficacy of the drug, then this is a strategy worth considering. An alternative to lowering the dose is the idea of a drug holiday (stopping the drug for a limited period before the anticipated sexual activity). Drug holidays, of 1–3 days or longer, allows the level of offending agent in the body to decrease. However, the benefit of this technique depends on the half-life of the drug. A drug holiday also raises issues of therapeutic efficacy and withdrawal symptoms (Keltner et al, 2002).

The most 'sex friendly' antidepressants are thought to be bupropine (Wellbutrin®) and nefazodone. Other strategies which have been reported include the prescribing of sildanefil (Viagra®) and Ginkgo biloba (a herbal medication). In two separate Cochrane reviews to determine the effects of these strategies on sexual dysfunction due to antidepressants (Rudkin et al, 2004) and antipsychotic medication (Berner et al, 2007), the reviewers highlighted the lack of quality studies in this area. Although the reviewers were of the opinion that the lack of randomized data limited the confidence with which any one strategy could be advocated, they concluded that the addition of sildanefil appeared to have a positive effect on antidepressant- and antipsychotic-induced sexual dysfunction in men. Limited evidence was found for the switching of antidepressant medication to nefazodone, with no evidence to support the use of Ginkgo biloba. Both Berner et al (2007) and Rudkin et al (2007) suggest that further well-designed and larger trials are urgently needed to evaluate the usefulness of all the strategies identified.

Assalian et al (2000) also allude to the idea that people with schizophrenia may find psychosexual events to be more stressful than the general population, and given current thinking on the vulnerability-stress-coping-competency model of schizophrenia, sexual dysfunction could be a contributing stress factor leading to deterioration.

The nurse's role

Engaging clients in a collaborative discussion about drug treatment is a core aspect of informed consent (Usher and Arthur, 1998) and central to the current emphasis on concordance and the recovery model of mental health (Barker and Buchanan-Barker, 2005). Both the recovery model and the philosophy of concordance emphasize clients' rights to information and participation in decision making. For clients to be genuinely involved in the consent process, a dialogue must take place between the nurse and client. To do this, nurses need to challenge their current paternalistic model of care, which views information giving in negative terms and sees information as a barrier to compliance. The limited studies of clients in this area suggest they have difficulty reporting sexual side-effects to nurses because of embarrassment and lack of knowledge, and would like more information on the impact of drugs on sexuality (McCann, 2004). Nurses, therefore, need to be more proactive, with both men and women, in educating and enquiring about drug-induced sexual dysfunction.

In recent years, within the health education literature, emphasis is placed on providing clients with written information on health issues, including the side-effects of drugs. Providing structured individualized education using a combination of easy-to-read information leaflets and teaching strategies, such as discussion, role play and audiovisual aids, has been found to be more effective than verbal information alone. Written information, however, is of little benefit to clients, if they have difficulty reading or understanding the information. Nurses, therefore, need to be aware of the literacy level of their clients and use the written information as supplemental to discussion (Higgins et al, 2006).

Regular formal questioning of clients about experiences has the potential to reduce the side-effect burden as medication can be changed or reduced. The introduction of standardized side-effect assessment tools decreases the risk that care will be compromised by any knowledge deficit of healthcare professionals. They have also been found to increase the number of problems detected and actioned by nurses, including long-standing problems that had previously gone unnoticed (Jordan et al, 2002). They will also legitimize nurses' concerns about the sexual

Table 3. Side Effect Assessment Scales

- Simpson-Angus Scale (Simpson and Angus, 1970)
- The Abnormal Involuntary Movement Scale (Guy, 1976)
- The Udvalg for Kliniske Undersogelse Scale (Lingjaerde et al, 1987)
- Side Effect Scale/Checklist for Antipsychotic Medication (Bennett et al, 1995)
- Liverpool University Neuroleptic Side Effect Rating Scale (Day et al, 1995)
- The Extrapyramidal Symptom Rating Scale (ESRS) (Chouinard and Margolese, 2005)

Table 4. Other conditions associated with sexual dysfunction

- Diabetes
- Atherosclerosis
- Cardiac disease
- Central and Peripheral nervous systems disease
- Alcoholism

function of clients and help them discuss side effects that may be considered embarrassing. Although, a number of side-effects rating scales exist (*Table 3*), they tend to focus on the side effects of neuroleptic medications, as opposed to antidepressants and anticholinergic drugs. Therefore, there is a case for the development of scales that address antidepressants and anticholinergic drugs.

It is important to acknowledge that not all complaints of sexual dysfunction are attributed to drugs or the emotional impact of the mental distress on sexual desire and arousal. Sexual problems are common in both men and women who do not have a diagnosed mental health problem, therefore, it is important that a detailed assessment is carried out so an appropriate referral can be made. Sexual problems can be a symptom of other physical problems (*Table 4*) or a problem with a relationship.

Conclusion

Informing or enquiring about iatrogenic sexual dysfunction poses significant challenges to nurses' comfort levels. Nurses need to develop their knowledge and comfort levels, not only to talk freely to clients about iatrogenic sexual dysfunction, but also to create a context where clients will share their experiences and concerns. If nurses are to feel skilled and confident enough to talk about iatrogenic sexual dysfunction, educators need to pay more attention to these side effects within educational sessions and facilitate nurses to develop the confidence to talk about these side effects in an open manner. Educators also need to challenge the erroneous belief that there is an inverse relationship between giving information about side effects and clients' willingness to take medication. Waiting for clients to break the silence and raise their concerns may leave many clients isolated, confused and distressed or fearful – not just of the drugs, but of engaging in intimate relationships (Higgins et al, 2006).

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KEY POINTS

- Psychotropic medication can cause significant side-effects that impact on sexuality and sexual function.
- Nurses have a key role to play in educating and monitoring these side-effects.
- Clients may be reluctant to report these side-effects due to their sensitive nature.
- Nurses need to be proactive in informing clients and asking about the impact on drugs on sexual function.

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