

## Use of neuro-psychiatry medicines in patients with sexual dysfunction: a retrospective study

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### ABSTRACT

**Background:** The objective of the study was to understand the usage of neuro-psychiatry medicines in patients presenting with symptoms of sexual dysfunction.

**Methods:** Medical records of adult patients consulting in the clinic out patients with symptoms of sexual dysfunction were screened for prescriptions of neuropsychiatry medicines. Common neuropsychiatric co-morbidities and prevalence of usage of medicines used for treating neuro-psychiatric disorders was calculated.

**Results:** A total of 628 patients with sexual disorders were included of which 57 (9.1%) had received at least one neuro-psychiatry medicine at the time of presentation. Three most common sexual problems were unconsummated marriage 16 (28.1%), psychogenic ED 14 (24.6%) and organic erectile dysfunction 8 (14.0%). A total of erectile dysfunction 46 (7.3%) patients had psychiatric comorbidity. Five most common neuropsychiatric co-morbidities were anxiety 14 (30.4%), schizophrenia 10 (21.7%), stress 7 (15.2%), depression 6 (13.0%) and epilepsy 2 (4.3%). The most commonly used neuro-psychiatry medicines were fluoxetine 15 (19.7%), risperidone 11 (14.5%), clonazepam 10 (13.2%), escitalopram 9 (11.8%), alprazolam 5 (6.6%), olanzapine 5 (6.6%) and gabapentin 4 (5.3%). Amisulpride was used in 3 (3.9%) patients whereas valproate, fluoxamine, diazepam and paroxetine were used in 2 (2.6%) patients each. Phenytoin, imipramine, carbamazepine, venlafaxine, haloperidol and sertarline were used in one patient each.

**Conclusions:** Anxiety, schizophrenia and depression are the most common neuropsychiatric disorders in patients with sexual dysfunction. Many patients presenting with sexual dysfunction are already on neuropsychiatry medicines. Further studies are required to evaluate the association between neuropsychiatry medicines and sexual dysfunction in Indian patients.

**Keywords:** Andrology, Neuropsychiatry medicines, Retrospective study, Sexual dysfunction

### INTRODUCTION

Sexual dysfunction is a common medical problem with significant impact on the quality of life.<sup>1</sup> Erectile dysfunction, diminished libido and ejaculatory dysfunction are some of the common complaints of patients presenting to clinicians practicing sexual medicine. Several medical conditions may be associated with sexual dysfunction including diabetes, hypertension and dyslipidemia.<sup>2</sup> Generally, sexual dysfunctions are more common in patients with psychiatric disorders than others.<sup>3</sup> Similarly, many patients presenting with

complaints of sexual dysfunction also have co-existing neurological illnesses. Epilepsy is one of the major neurological diseases associated with sexual dysfunction whereas depression and schizophrenia are the two common psychiatric conditions which may co-exist in some patients with sexual dysfunction.<sup>4-7</sup> In addition to neuropsychiatry illnesses, treatment emergent adverse events in the form of sexual dysfunction are also a common concern with the use of psychotropic medicines. Medicines used for the treating epilepsy i.e. antiepileptic agents can affect neuroendocrine function.<sup>2</sup> Antidepressants especially selective serotonin reuptake

inhibitors (SSRIs), serotonin and noradrenaline reuptake inhibitors (SNRIs) and antipsychotics are the medicines which are commonly implicated in the sexual dysfunction.<sup>6,8,9</sup> Few Indian studies have examined the sexual dysfunction associated with antipsychotics and antidepressants.<sup>10,11</sup> However, systematic large scale data of neuropsychiatry comorbidities and medicines used for their treatment in Indian patients presenting with sexual dysfunction are limited.

The objective of this study was to understand the prescription pattern of neuropsychiatry medicines in patients with symptoms of sexual dysfunction in a single Andrology clinic.

## METHODS

A retrospective observational study was conducted among adult male patients presenting with symptoms of sexual dysfunction. Medical records of all out patients from January 2012 to March 2014 presenting with symptoms of sexual dysfunction were screened for prescriptions of neuropsychiatry medicines. All patients receiving at least one neuropsychiatry medicine were included in the analysis. Prevalence of neuropsychiatric co-morbidities was calculated and usage of medicines used for treating neuropsychiatry disorders was reported.

### Statistical analysis

Categorical data is represented as number and percentages whereas the continuous data are summarized as mean and standard deviation.

## RESULTS

We screened the medical records of 628 patients with sexual dysfunction. The mean age of patients was 36.79 ( $\pm 11.38$ ) years (table 1).

**Table 1: Baseline characteristics.**

Baseline parameter	
Mean ( $\pm$ SD) age of overall patients (n=628)	36.79 ( $\pm 11.38$ ) years
Mean ( $\pm$ SD) age of patients receiving at least one Neuropsychiatry medicine (n=57)	35.12 ( $\pm 9.75$ ) years
Married: Unmarried (n=57)	77.19%:22.81%

A total of 57 (9.1%) presenting with symptoms of sexual dysfunction were on at least one neuropsychiatry medicine. The most common sexual problems were unconsummated marriage 16 (28.1%), psychogenic erectile dysfunction 14 (24.6%) and organic erectile dysfunction 8 (14.0%) (Table 2).

A total of 46 (7.3%) patients had psychiatric comorbidity. Five most common neuropsychiatric co-morbidities were

anxiety 14 (30.4%), schizophrenia 10 (21.7%), stress 7 (15.2%), depression 6 (13.0%) and epilepsy 2 (4.3%) (Table 3). In remaining 11 (24.2%) patients psychotropic drugs were prescribed but the diagnosis of neuropsychiatric disorder was not clearly mentioned.

**Table 2: Sexual dysfunction among patients receiving neuropsychiatry medicines.**

Type of sexual dysfunction	Patients on neuropsychiatry medicine N (%)
Unconsummated marriage	16 (28.1%)
Psychogenic erectile dysfunction	14 (24.6%)
Organic erectile dysfunction	8 (14.0%)
Neurogenic erectile dysfunction	3 (5.3%)
Mixed erectile dysfunction	2 (3.5%)
Premarriage anxiety	1 (1.8%)
Situational anejaculation	1 (1.8%)
Marital problems	1 (1.8%)
Erectile dysfunction	1 (1.8%)
Dhat Syndrome	1 (1.8%)
Shrinking penis	1 (1.8%)
Neurogenic pain in penis	1 (1.8%)
Organic erectile dysfunction + Penile curvature	1 (1.8%)
Premature ejaculation	1 (1.8%)
Erectile dysfunction + Premature ejaculation	1 (1.8%)
Psychogenic erectile dysfunction + Premarriage Anxiety	1 (1.8%)
Drug induced erectile dysfunction	1 (1.8%)

**Table 3: Neuropsychiatry comorbidity among patients with sexual dysfunction.**

Neuropsychiatry comorbidity	N (%)
Anxiety	14 (30.4%)
Schizophrenia	10 (21.7%)
Stress	7 (15.2%)
Depression	6 (13.0%)
Epilepsy	2 (4.3%)
Obsessive compulsive disorder	1 (2.2%)
Bipolar disorder	1 (2.2%)

The most commonly used neuropsychiatry medicines were fluoxetine 15 (19.7%), risperidone 11 (14.5%), clonazepam 10 (13.2%), escitalopram 9 (11.8%), alprazolam 5 (6.6%), olanzapine 5 (6.6%) and gabapentin 4 (5.3%) (Table 4). Amisulpride was used in 3 (3.9%) patients whereas valproate, fluoxamine, diazepam and paroxetine were used in 2 (2.6%) patients each. Phenytoin, imipramine, carbamazepine, venlafaxine, haloperidol and sertarline were used in one patient each.

**Table 4: Neuropsychiatry medicines in patients with sexual dysfunction.**

Neuropsychiatry medicine	N (%)
Fluoxetine	15 (19.7%)
Risperidone	11 (14.5%)
Clonazepam	10 (13.2%)
Escitalopram	9 (11.8 %)
Alprazolam	5 (6.6%)
Olanzapine	5 (6.6%)
Gabapentin	4 (5.3%)
Amisulpride	3 (3.9%)
Valproate	2 (2.6%)
Fluoxamine	2 (2.6%)
Diazepam	2 (2.6%)
Paroxetine	2 (2.6%)
Phenytoin	1 (1.3%)
Imipramine	1 (1.3%)
Carbamazepine	1 (1.3%)
Venlafaxine	1 (1.3%)
Haloperidol	1 (1.3%)
Sertarline	1 (1.3%)

## DISCUSSION

Sexual dysfunction in patients with neuropsychiatry disorders is a common clinical problem which might be contributed by disease and/or drugs or both. It is a complex interplay of multiple pathways in the brain and results due to rise in neurotransmitters such as serotonin, and reduction in dopamine.<sup>12</sup> In this single center retrospective study, we evaluated prevalence of neuropsychiatry diseases in patients presenting with sexual dysfunction and usage of medicines used for it. The most common sexual dysfunction among the patients in this study was erectile dysfunction. Erectile dysfunction could be because of several reasons including vascular dysfunction, endocrine disturbance, psychogenic or medicine related.<sup>13</sup> In our study, close to one fourth patients had psychogenic erectile dysfunction. It is quite possible that while looking for organic causes clinicians might ignore the psychological factors.<sup>14</sup> In order to avoid missing large population with this problem, psychological or interpersonal relations between the partners should be carefully assessed.

Several neuropsychiatry disorders are known to be associated with sexual dysfunction of which anxiety, schizophrenia, stress and depression were most common in our study. Sexual dysfunction is more common in patients with schizophrenia compared with healthy people. A cross sectional study reported sexual dysfunction in 46% male patients compared to 8% control group.<sup>15</sup> A Chinese study reported sexual dysfunction in 69.9% patients with schizophrenia.<sup>7</sup> In our study schizophrenia is second most prevalent condition after anxiety. Physicians often do not enquire about sexual dysfunction in patients with schizophrenia

in routine clinical practice. Our study highlights the need for checking sexual dysfunction in this patients.<sup>16</sup> On one hand schizophrenia is associated with sexual dysfunction while on the other medicines used for its treatment i.e. antipsychotics are also well known to cause sexual dysfunction. The incidence of sexual dysfunction differs with different antipsychotics. The first-generation antipsychotics are associated with more sexual dysfunction.<sup>7,17</sup> Whereas among second generation antipsychotics risperidone is associated with more rates of sexual dysfunction. Lower incidence is seen with other atypical agents such as clozapine, olanzapine, quetiapine, and aripiprazole. Several factors including postsynaptic dopamine blockade, rise in prolactin level are known to play a role in sexual dysfunction seen with antipsychotic medicines.<sup>17</sup> In accordance with the literature, in our study too, risperidone was the most commonly used antipsychotic.

Depression is significantly associated with sexual dysfunction such as premature ejaculation and decreased libido. A recent systematic review and meta-analysis showed significant association between depression and risk of premature ejaculation (OR=1.63, 95% CI:1.42-1.87).<sup>18</sup> In our study, depression was one of the most prevalent psychiatric illnesses among patients with sexual dysfunction. Selective serotonin reuptake inhibitors (SSRIs) are commonly implicated in the development of sexual dysfunction in a dose dependent manner.<sup>19</sup> Increase in the levels of serotonin explains the common occurrence of sexual dysfunction in patients receiving SSRI.<sup>12</sup> In our study, fluoxetine was the most common antidepressant used. Risk benefit ratio with respect to sexual dysfunction needs to be considered while selecting an antidepressant medicine in adult patients. A study has shown that switching patients from SSRIs to vortioxetine, an atypical antidepressant may be beneficial.<sup>20</sup>

Anxiolytic medicines are another group of medicines associated with sexual dysfunction.<sup>9</sup> In our study, anxiety was the most common neuropsychiatry co-morbidity and 22.4% patients were on anxiolytic medicines i.e. clonazepam, alprazolam and diazepam. Of these, clonazepam was the most commonly used. In a study among patients with post-traumatic stress disorder, 42.9% male patients receiving clonazepam reported sexual dysfunction mainly erectile dysfunction<sup>21</sup> whereas none of the patients receiving diazepam, alprazolam or lorazepam complained about sexual dysfunction.

Patients with epilepsy usually have higher rates of sexual dysfunction compared with general population.<sup>22,23</sup> Several factors including disease related, medicine related or psychological factors contribute to this problem in patients with epilepsy.<sup>23</sup> In our study there were only two patients with epilepsy. However, of the total usage of psychotropic medicines in this study, 5.2% medicines were antiepileptics which included sodium valproate, carbamazepine and phenytoin. Male patients receiving carbamazepine, sodium valproate and lamotrigine have

shown to have lower testosterone levels compared to healthy people.<sup>24</sup> This reduction could be responsible for sexual dysfunction. Antiepileptics such as carbamazepine and phenytoin can increase the metabolism of sex hormones due to their enzyme inducing potential.<sup>23</sup> Similarly reduced libido with valproate and enzyme-inducing antiepileptic agents is known.<sup>25</sup> Physicians should carefully select psychotropic drugs while treating neuropsychiatry disorders to avoid drug induced sexual dysfunction. Gabapentin, an antiepileptic agent is also known to cause sexual dysfunction.<sup>25</sup> In our study, 5.3% patients were on gabapentin.

Unexpectedly, unconsummated marriage was observed in about 30% patients. This finding is particularly important in India because, generally most patients do not talk about sexual matters.<sup>26</sup> Detail history of patients might reveal a cause of sexual dysfunction which only needs effective counseling and not psychotropic medicines, potentially avoiding the misuse of these medicines.

There are some limitations of this study. This is a retrospective analysis, precluding any definite association of neuropsychiatry medicine with sexual dysfunction. Secondly, it is a single center study; hence generalizing observations to complete patient population of sexual dysfunction is difficult. Due to lack of data on the exact duration of therapy with neuropsychiatry medicines and absence of correlation analysis, it is difficult to relate definite association of psychotropic medicines and sexual dysfunction in this study. Nonetheless, the observations provide many insights about the usage of neuropsychiatry medicines in patients with sexual dysfunction.

## CONCLUSION

Erectile dysfunction is the most common sexual dysfunction among patients receiving psychotropic medicines. Anxiety, schizophrenia and depression are the most common neuropsychiatry disorders in patients with sexual dysfunction. Many patients presenting with sexual dysfunction are on neuropsychiatry medicines. Physicians should carefully select medicines for the treatment of neuropsychiatry diseases considering potential for sexual dysfunction. Further studies are required to evaluate the association between neuropsychiatry medicines and sexual dysfunction in Indian patients.

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