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Psychotropic Medication Effects, Management, and Treatment of Sexual Dysfunction: a Systematic Review

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ABSTRACT

This study aimed to systematically assess the impact of psychotropic medication-induced sexual dysfunction on all sexes and to outline the safety of relevant medical interventions. Several databases were searched using key terms to derive pertinent data across randomly selected population groups. Viable literature was screened using eligibility criteria, selecting the most vital and reliable information. Conflicting information and heterogeneity across studies required a systematic narrative to represent the included data. A bias risk summary was calculated using the Cochrane Tool for Risk of Bias calculation. Our search yielded more than 2000 eligible studies. Further stratification was performed to eliminate non-pertinent data, and characteristics of selected studies were tabulated. Selective serotonin reuptake inhibitors (SSRIs) and typical antipsychotics were strongly associated with sexual dysfunction across various study populations. Switching from SSRIs to serotonin-norepinephrine reuptake inhibitors and/or switching from prolactin-raising antipsychotic psychotropic medication was associated with improved sexual function. Pharmacological interventions were suggested by a majority of the included studies. Non-pharmacological interventions were associated with improved sexual function across all sexes. Several extracts, including maca root, saffron, and *rosa damascene* oil, were associated with improved sexual function.

1. Introduction

Antidepressants, antipsychotics, and anticholinergic therapeutics are medical interventions for patients diagnosed with mental disorders [1]. These prescribed medications are administered on the presumption that medical pathogenesis of mental diseases is predominantly due to some underlying pathology of the brain, mainly some biochemical imbalance. The use of these medications is being scrutinized due to their potential adverse effects that affect patients' quality of life.

Reviews by [2], [3] assessed the extent of sexual dysfunction in the United States and found that 40% of women and 30% of men experienced some sexual dysfunction, with 22% of women in the review

exhibiting a low sexual desire and 21% of men suffering from premature ejaculation. An analysis in European countries found that 34% of women and 15% of men experience sexual dysfunction [3].

Sexual impairment in both males and females varies extensively with the type of psychotropic medication administered. Rothschild (2000) reported that treatment-emergent sexual impairment was associated with all antidepressants. Over 30% of all individuals taking antidepressants medication developed sexual dysfunction [4]. Sexual dysfunction or impairment describes any loss or decrease in sexual desire or libido, reduction in arousal, low intercourse frequency, and a substantial delay or an incapacity to achieve an orgasm [5].

However, sexual dysfunction, as a side effect of psychotropic medications, and the effects of pharmacological intervention have not been extensively studied due to several factors. First, sexual activity is considered harmful for patients with schizophrenia. The second and the most influential factor is an overall lack of interest from clinicians and patients, as research has primarily centered on patient sexuality, disease description, and behaviors associated with the diseases [6- 8]. However, this understanding is changing as more studies explore the effects of these medications on the sexual health of patients [9- 11].

Further analysis of the impact of psychotropic medications on patients' sexual health has revealed a lower quality of life, negative attitude and non-compliance towards treatment [12]. Evidence presented by a number of studies shows typical and atypical contributions of antipsychotics to impaired sexual activity through alterations in libido, arousal and orgasms, depending on the pharmacological attributes of specific drugs [13], [14].

1.1 Biology of sexual response

Various neurotransmitters and hormones initiate sexual responses in humans. Dopamine, acetylcholine, nitric oxide, serotonin and testosterone are the most studied sexual response mediators. These responses are mediated in the hypothalamus, limbic system and brain cortex, where these facilitators are mainly found [15- 17].

[16] stated that normal, orthodox sexual reactions include desire, arousal, and an intended orgasmic outcome. The serotonergic system, associated with the hippocampus and amygdala, is used to counter the impact of the sexual response [18]. Activation of relevant receptors determines the implications of serotonin in the brain. For example, 5-hydroxytryptamine (5-HT) type 2 and type 3 receptors inhibit the sexual response, while 5-HT1A stimulates it [18].

Meanwhile, dopaminergic activation plays a critical role in the mesolimbic pathways and reward mechanism by activating the nucleus accumbens and medial preoptic region of the hypothalamus, inducing a sexual response [18]. In males, activation of the paraventricular nucleus initiates penile erection. Prior to medication, individuals manifesting severe depressive disorder showed a negative sexual response. In depressed patients, 40% of men and 50% of women exhibited decrease in desire, arousal and orgasm [19]. Moreover, the relation was found to be bidirectional [20].

1.2 Effect of psychotropic medication biological sexual response in humans

Table 1 discusses theories about the effect of psychotropic drugs on sexual dysfunction, including hyperprolactinemia, alpha-androgenic and acetylcholine receptor inhibition, antagonistic histamine action, and dopaminergic antagonistic action.

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Table 1. The impact of psychotropic medication on the sexual health of an individual, and on physiology.

Type of Drug Effect	Exhibited Physiological Impact	Impact on Sexual Function
Dopamine receptor antagonism	Motivation and reward inhibition	Decreased desire
Histamine receptor antagonism	Sedation	Arousal disorder
Cholinergic receptor antagonism	Decreased peripheral vasodilation	Erectile dysfunction
Dopamine D2 receptor antagonism	Hyperprolactinemia	Decreased desire, impaired arousal, impaired orgasm
Alpha-adrenergic alpha receptor	Decreased peripheral vasodilation	Decreased erection, abnormal ejaculation, priapism
Selective Serotonin reuptake inhibitors (SSRIs)	Motivation and reward inhibition	Erectile dysfunction, anorgasmia, loss of libido
Selective norepinephrine reuptake inhibitors (SNRIs)	Motivation and reward inhibition	Erectile dysfunction, ejaculatory impairment, orgasm impairment
Atypical antidepressants	Motivation and reward inhibition	Delayed orgasms
Monoamine oxidase inhibitors (MAOIs)	Motivation and reward inhibition	Decreased desire, orgasm delay
Tricyclic antidepressants (TCAs)	Motivation and reward inhibition	Erectile and ejaculatory dysfunction, anorgasmia

Hyperprolactinemia, a condition documented is the limitation of highly prolific antipsychotic drugs in the hypothalamic infundibular system, producing excessive prolactin, which impairs sexual response, and is most prevalent in patients exhibiting sexual impairment [21- 23]. Studies by have documented a direct correlation between psychotropic-induced hyperprolactinemia and sexual dysfunction [24- 28]. However, it remains unclear whether this relationship is direct or indirect. Other mechanisms of action of psychotropic medication-induced sexual impairment have been presented previously [13], [25], [26], [29].

Not many randomized controlled trials (RCTs) show the overall effect of specific psychotropic medication; most studies are observational and comparative [30]. Therefore, this study aimed to systematically review pertinent data from peer-reviewed, published and grey area literature on the impact of psychotropic medications on sexual dysfunction in human males and females.

2. Materials and methods

2.1 Search strategy

We searched medical databases, like MEDLINE, EMBASE, PubMed, SCOPUS, and the Cochrane Database of Systematic Reviews. We also searched the Clinical Trials database, the ISRCT database, the Economic Evaluation database, and the International Prospective Register of Systematic Reviews to identify any ongoing research on the issue and to identify any studies that were not discovered using the Google Scholar search engine. Additionally, manual searches for references derived from the examined publications were performed. The use of keywords governed the search strategy. The English language was used, and no chronological filters were applied to the search strategy. The following search terms were used to generate eligible literature: psychotropic medication, antidepressant or antipsychotic drugs, sexual dysfunction, impairment, treatment, and management.

2.2 Eligibility criteria

Studies included in this systematic review adhered to the following inclusion criteria:

1. Studies reporting novel research results
2. Studies identifying various psychotropic medications
3. Studies in the English language
4. Studies including all age groups, genders, and ethnic groups.
5. Randomly Controlled Trials
6. Studies involving treatment and management modalities of sexual dysfunctions caused by psychotropic medications.
7. Studies with strictly human patients.
8. Studies identifying the safety and feasibility of treatment modalities for sexual dysfunction.

2.3 Study selection and data synthesis

The use of these criteria in conjunction with various previously mentioned databases aided in identifying abstracts to be considered for inclusion. Data and information provided by the authors were also examined for discrepancies. Whenever the main author's data could not be located, the lead researcher checked for inconsistencies on their own. A random sample of accepted full-length publications was selected by each researcher and examined in detail. When the group agreed to offer the most transparent data available, any issues that may have arisen could be resolved.

2.4 Data analysis

Owing to the heterogeneity of the studies, a systematic narrative synthesis was utilized. This review also adopted the use of synopses and tabulations of the studies.

2.5 Risk of bias

Obscured randomization, specified inclusion and exclusion parameters, blinded study, individual screening, blinded data processing, and intention-to-treat analysis were employed to reduce bias. The overall risk of bias in the studies was assessed using the Cochrane Handbook tool. The risk of bias for the studies was determined to be high, low, or unclear. Figure 1 represents data derived from sequence generation, allocation concealment, blinding of participants, personnel and outcome assessors, incomplete data, selective outcome reporting, and other risk areas.

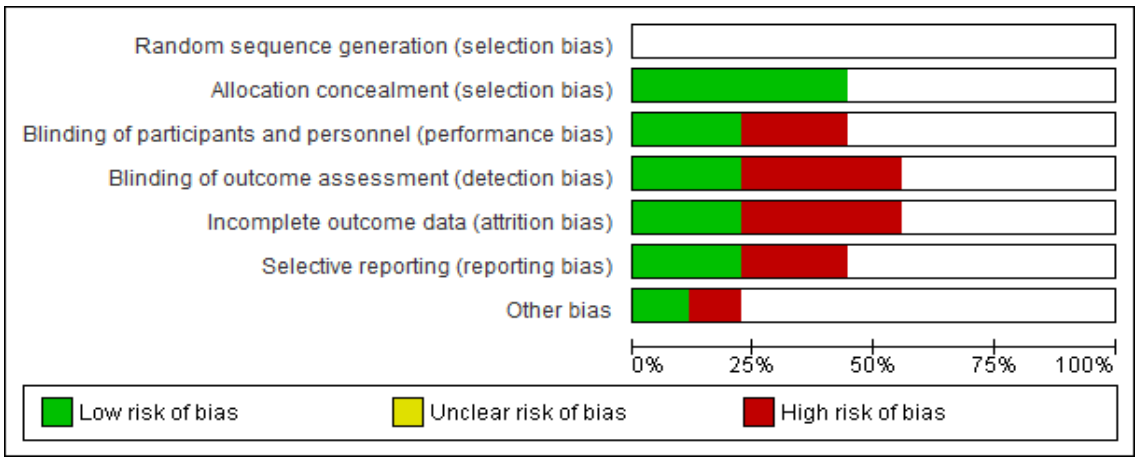

Figure 1 Risk of bias graph

3. Results

3.1 Literature search

We identified 2089 relevant studies from the medical databases listed above. We excluded 1489 because

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they were duplicates and/or not in English. After a thorough evaluation of the abstracts and titles, 743 papers were excluded because they were not related to the study's focus, 110 articles were discarded after a comprehensive review of the entire text of the 150 citations available for further stratification. We included 40 papers in this systematic review based on this classification (Figure 2).

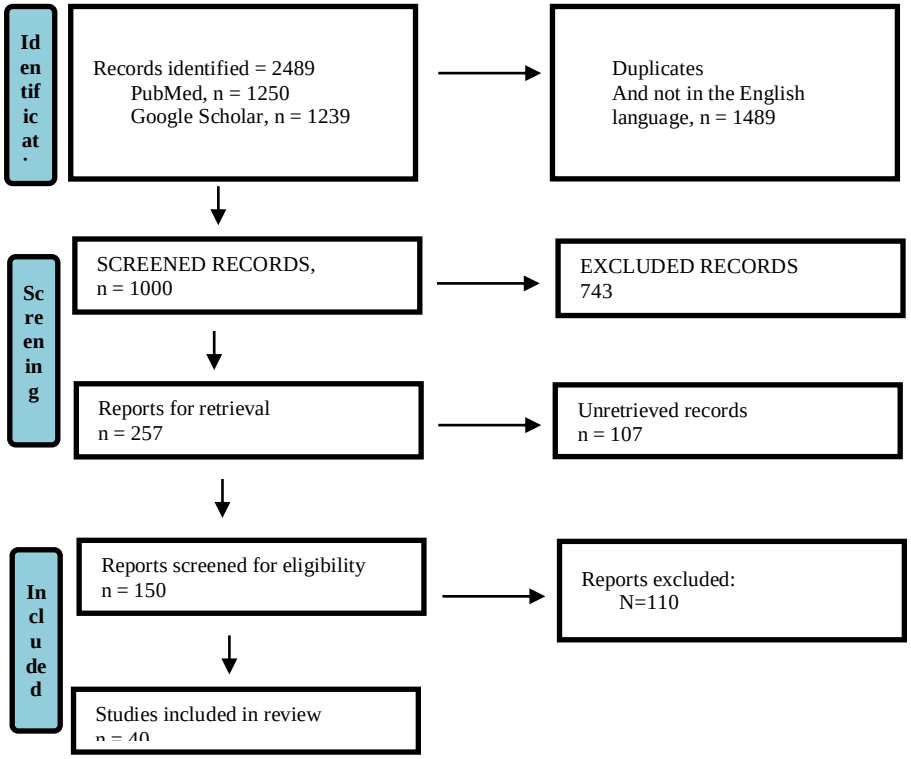

Figure 2 PRISMA flow chart

3.2 Characteristics of the included studies

Table 2. Types of antidepressants and sexual dysfunction

STUDY ID	POPULATION	TYPE OF ANTIDEPRESSANT	TIME
[76]	Male n=133 Female n=130 Placebo n=127	Bupropion, Escitalopram	8 weeks
[78]	Male n=129 Female n=263 Placebo n=96	Duloxetine, Escitalopram	8 weeks
[79]	Male n=82 Female n=157 Placebo n=111	Desvenlafaxine	12 weeks
[80]	Male n=87 Female n=119 Placebo n=210	Vilazodone	8 weeks
[81]	Male n=287 Female n=607 Placebo n=435	Desvenlafaxine	8 weeks
[82]	Male n=598 Female n= 783 Placebo n=476	Vilazodone, citalopram	10 weeks

[83]	Total n= 439 Placebo n=156	Vortioxetine, duloxetine	8 weeks
[71]	Male n=61 Female n=182 Placebo n=137	Vortioxetine	8 weeks

All included studies were RCTs, which used the ASEX and CSFQ-14 scales. Medication in the trials was administered in a double-blind manner, using a voice response or software system.

Most participants were Caucasian women, and most studies were conducted in the United States. The mean age of the study population ranged between 42 and 45 years.

Table 3. Psychotropic and sexual dysfunction

Medication category	STUDY	OUTCOME
SSRIs	[71], [82], [81], [78], [83], [84]. [85], [86]	SSRIs act by inhibiting serotonin reuptake. This inhibition is closely associated with the development of serotonin syndrome. In an approximate statistic, between 25% and 70% (high risk) of patients under SSRI treatment experienced sexual dysfunction in terms of impaired orgasm, erectile and ejaculatory impairments, and decreased libido.
TCAs	[87]	In an estimated statistic, over 30% of TCA-treated patients experienced sexual dysfunction (relatively high risk). TCAs are closely associated with inhibiting serotonin and norepinephrine reuptake mechanisms. TCAs have also been closely associated with a number of side effects stemming mostly from their affinity for histaminergic, adrenergic, and cholinergic receptors. Some of the most widely documented sexual dysfunction issues include erectile and ejaculatory dysfunction, low sexual drive, and impaired orgasms.
SNRIs	[82], [80]. [77];	SNRIs also act by inhibiting serotonin and norepinephrine reabsorption. However, the severity of adverse effects and the approximate prevalence rates in the treatment groups are significantly different from SSRIs, with a projected limit of 70% prevalence (relatively high risk). The major clinical manifestations of SNRI-induced sexual dysfunction include an absence of orgasms and slight erectile and ejaculatory dysfunction cases in men.
MAOIs	[87]	These antidepressants block the action of enzyme monoamine oxidase, which is responsible for activating monoamines, such as serotonin and dopamine. MAOI treatment is associated with low sexual dysfunction prevalence rate, about 40% (low risk), mostly associated with delayed orgasms and decreased libido.
Atypical	[76].	Atypical antidepressants mainly include

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antidepressants	[83], [86], [88], [85]	norepinephrine and dopamine inhibitors with a very low sexual dysfunction prevalence rate of less than 25% in intervention groups (low risk). These antidepressants are largely associated with delayed orgasm and rare cases of erectile dysfunction.
Aripiprazole	[89], [90], [91], [92], [93]	Aripiprazole exerts a counteracting mechanism by lowering prolactin levels and is associated with a much lower contribution to sexual dysfunction than other antipsychotic drugs. The ability to normalize prolactin levels when co-administered with other psychotropic medication serves as an intervention measure to counter the impact of other antipsychotic drugs and as a suitable substitute.
Haloperidol	[94], [52], [95], [54]	Haloperidol has been associated with a higher rate of sexual dysfunction development, over 70%. This medication is associated with elevated prolactin levels.
Olanzapine	[96], [26], [97], [98], [58], [100], [101], [55], [8], [103], [104]	Though different studies have put forward conflicting evidence, olanzapine has been associated with an increased level of sexual dysfunction, with some studies reporting the opposite. Moreover, switching from certain typical antipsychotics, such as risperidone, to olanzapine has improved sexual function in both genders. Some studies show that olanzapine administration increases prolactin levels, which decrease after a few weeks.
Quetiapine	[53]; [102]; [99]; [57]; [105]; [58]; [106]; [107]; [103]	The level of sexual dysfunction associated with quetiapine intake is about 50-60%, similar to risperidone and olanzapine. However, quetiapine has not been associated with an elevated level of prolactin, indicating that the severity its side effects is not similar to that of risperidone, olanzapine, or haloperidol. One study has reported an increase in sexual desire under quetiapine administration.
Risperidone and paliperidone	[94]; [108]; [109]; [110]; [26]; [111]; [112]; [113]; [114]; [115]; [8]; [54]; [116]	Studies report a decrease in sexual desire, erectile and ejaculatory disorders, interrupted orgasms, decreased vaginal lubrication, and irregularities in the menstrual cycle in patients taking risperidone. Furthermore, quetiapine was documented to have a higher sexual dysfunction severity score, in approximately 60-70% of the study population. This severity is attributed to elevated prolactin levels in the body under risperidone treatment. Similar observations were made in paliperidone administration.
Ziprasidone	[117]; [118]; [96]	A significant improvement in sexual function has been associated with switching typical antipsychotics with ziprasidone due to its inability to alter prolactin levels in the body.

Amisulpride	[119]; [120]; [121]	Amisulpride is closely associated with an increased prolactin level and a heightened level of sexual dysfunction, similar to risperidone, clozapine, and other typical antipsychotics.

3.2 Pharmacological intervention for psychotropic medication-induced sexual dysfunction

3.2.1 Spontaneous remission

Previous studies have reported different rates of possible spontaneous remission: in less than 3 months [124], 3–6 months [122], [124], 6 months [123], [124], and more than 6 months [125].

Table 4. Additional treatment (dopaminergic agonists, 5HTA1 receptor stimulators, cholinergic, serotoninergic antagonists, antioxidant pathways, other mechanisms).

STUDY IDS	Drug
[126]	Amantadine
[127]	Cyproheptadine
[128]	Buspirone
[129]	Yohimbine
[130]	Mirtazapine
[131]	Bupropion
[132]	Methylphenidate

4. Discussion

Psychotropic medications can be categorized into two main groups: antidepressants and antipsychotics. Separating the potential contributing medications into categories is crucial for the overall evaluation of the effects of these psychotropic medications on sexual impairment.

4.1 Antidepressants and sexual dysfunction

Depression is a major risk factor for sexual dysfunction. A meta-analysis conducted by showed a 50-70% increase in risk of sexual impairment in patients diagnosed with depression after adjusting for all possible comorbidities [31]. These risks were higher in women than in men, indicating a higher likelihood of developing depression, anxiety, and sexual dysfunction [2].

Hypothesized that the mechanism of depression-mediated sexual impairment involves reduced motivation to engage in self-satisfactory activities and an increased likelihood of developing drug and substance abuse disorders [32], [33]. Additionally, comorbidities associated with depression, such as metabolic syndrome associated with behavioral patterns, are likely contributors to sexual impairment [34].

Three recent meta-analyses that examined the rates of severe sexual impairment revealed similar results, showing an association between antidepressants and sexual impairment in 40% and 14% of cases in drug-treated and placebo groups, respectively. However, these studies were hindered by a largely heterogeneous scale with variations in outcome measures, such as sexual response phase and antidepressant types [35- 37]. Medications associated with a more considerable impact, such as alterations in serotonin, are associated with an elevated incidence of sexual impairment, compared with non-androgenic, non-monoaminergic, or dopaminergic medications [35], [37]. A proportion of females taking antidepressants exhibited improved sexual function, as observed in a clinical trial by [38].

Studies conducted across various populations of women taking antidepressants revealed that 72% suffered from impairments in sexual desire, and 83% exhibit a lack of sexual arousal [39]. Approximately 42% of

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this population exhibited problems in achieving an orgasm, mostly seen in patients taking selective serotonin uptake inhibitors [39]. However, data detailing pain problems in these intervention groups remains severely heterogeneous. Some studies have reported increased absence of lubrication causing a vaginal pain, no effect, while some report improvement of vulvar pain upon the administration of antidepressants [40].

Further analysis of the included studies highlights that the female population has a higher reported rate of sexual dysfunction than the male population. Female patients exhibit an increased tendency to report higher rates of medication impact on their orgasms and sexual desire [35]. [41], [42] attempted to explain this trend based on their argumentative clauses on sexual differences in arousal processes. These studies revealed that vaginal arousal results from facilitation by sympathetic nervous system functions, which are interfered with by serotonergic medications [41], [42].

Studies carried out by showed that phenotypic manifestations of sexual dysfunction are exhibited between 2 and 4 weeks of treatment initiation, with effects of the antidepressant medication being exhibited later during the treatment [43].

In a study by Jacobsen, 2018, antidepressants were grouped into three categories: SSRIs, including citalopram, escitalopram, and paroxetine; atypical antidepressants; and SNRIs, including bupropion, vilazodone, vortioxetine, nefazodone, and mirtazapine. A meta-analysis of the impact of these medications on patient sexual health showed a general adverse effect on sexual health and functioning by SSRIs, compared to SNRIs or atypical antidepressants such as bupropion and reboxetine [44].

4.2 Antipsychotics and sexual dysfunction

An analysis of the included studies on the impact of antipsychotics on sexual impairment revealed several antipsychotic drugs, including quetiapine, ziprasidone, perphenazine, aripiprazole, fluphenazine, olanzapine, risperidone, haloperidol, clozapine, and thioridazine. As observed in most studies, the mechanism underlying the effect of antipsychotic medication on sexual dysfunction is inhibitory, affecting all phases of the sexual cycle.

An analysis of data from previous literature shows substantial evidence for the association between most antipsychotic medications and sexual dysfunction, such as decreased arousal, delayed ejaculation, and erectile dysfunction. This evidence was mainly manifested in the administration of chlorpromazine, pimozide, thioridazine, thiothixene, and sulpiride [45]. A number of studies have documented thioridazine because of its effect on delaying ejaculation, priapism (witnessed in all antipsychotic drugs), and anorgasmia [46- 48].

The number of RCTs on the effect of antipsychotic medications on sexual dysfunction remains limited, with most studies adopting an observational, cross-sectional approach [49]. Furthermore, data analysis and interpretation of results and data stemming from these studies remain limited, due to the use of various analytical tools and study materials and methods. This observation highlights the need for further studies with the intended outcome of confirming and interpreting available data [14], [50].

According to a meta-analysis conducted by higher sexual dysfunction association and risk ratio (40%-60%) were seen in olanzapine, risperidone, clozapine, and thioridazine treatment, whereas quetiapine, ziprasidone, perphenazine, and aripiprazole were associated with about 16-27% incidence of sexual dysfunction in the intervention groups. This observation was supported by evidence derived from studies by

[10], [51], [52]. Randomized, double-blind studies, analyzing fluphenazine, quetiapine, and risperidone, revealed associations of 78%, 50%, and 42%, respectively with sexual dysfunctions. Quetiapine showed milder side effects than the other two drugs [53], [54].

Switching from risperidone to olanzapine in an open-label trial conducted by resulted in a less severe impact of olanzapine, compared with risperidone [55]. The study further deduced that prolactin-raising antipsychotic medications, such as risperidone, were associated with a higher chance of sexual impairment than prolactin-sparing antipsychotics, such as clozapine, quetiapine, and olanzapine [56]. This observation was also challenged in a study by where switching risperidone for quetiapine was not associated with any statistically significant improvement in sexual function [57]. However, a corresponding study by [58] showed substantial improvement in switching between the medications.

4.3 Other psychotropic medications and sexual dysfunction

To date, limited information is available on the effects of mood stabilizers and anxiolytics on sexual dysfunction in individuals taking these drugs. The overall lack of RCTs on these psychotropic medications leaves a knowledge gap in understanding the mechanisms of psychotic medicines and their effects on sexual health. In a study conducted by [59], lithium, one of the most widely used mood stabilizers, initially showed no association with sexual dysfunction.

However, this observation was rejected by [59]. This study showed an association between mood stabilizers and erectile dysfunction. Another study that focused on assessing the association between anticonvulsant drugs in patients treated for bipolar disorder showed a significant association with sexual dysfunction [60]. It is important to note that some mood stabilizers, such as lamotrigine, improve sexual function [61].

[59] revealed that lithium and benzodiazepines co-administration increased sexual dysfunction levels to about 49%. Similarly, administration of alprazolam was associated with a decrease in libido and orgasm in patients treated for panic disorders [62]. The existence of conflicting information on observable clinical manifestations across studies has greatly impaired the evaluation of data from the literature.

4.4 Treatment and management of psychotropic medication-induced sexual dysfunction

4.4.1 Management of desire impairment

4.4.1.1 Pharmacological interventions

These interventions highlight the need for the co-administration of drugs that counteract each other's adverse effects. An example of this intervention was observed in a randomized, double-blind trial conducted by [63]. Women suffering from psychotropic medication-induced sexual dysfunction were placed under a sustained release of bupropion over a four-week trial period. A statistically significant increase in desire and intercourse frequency was observed in the intervention group, compared with the placebo group [63]. [64] observed the impact of testosterone supplementation in increasing the overall number of sexually satisfying events in a 12-week randomized trial.

4.4.1.2 Behavioral interventions

A study by [65] established that attempting exercising before sexual activity three times a week improved sexual desire in women suffering from antidepressants-induced sexual dysfunction.

4.4.1.3 Other interventions

A study by [66] on Chinese women exhibiting psychotropic medication-induced sexual dysfunction over 12 weeks showed that acupuncture, specifically Chinese medication acupuncture routines, significantly

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improved sexual desire.

4.5 Arousal management

4.5.1 Pharmacological interventions

[63] observed increased arousal in men with psychotropic medication-induced sexual dysfunction treated with phosphodiesterase type 5 inhibitors. However, evidence for the impact of these inhibitors in women with psychotropic medication-induced sexual dysfunction is lacking.

4.5.2 Behavioral interventions

Numerous studies have provided compelling evidence of the effects of exercise on arousal in patients with psychotropic medication-induced sexual dysfunction. In women, the practice serves as a potent sympathetic nervous system stimulator, countering the effects of psychotropic interferences within the system, which in turn aids in the improvement of sexual arousal prior to sexual activity [42].

A small trial by [65] provided evidence that cardiovascular and strength training exercise routines before intercourse significantly improved sexual function in women exhibiting psychotropic medication-induced sexual dysfunction.

4.5.3 Other interventions

In a randomized, double-blind, and placebo-controlled trial by [67], evidence on the use of 30 mg of Crocus sativus L, otherwise known as saffron, showed a substantial improvement in arousal and vaginal lubrication in women with psychotropic medication-induced sexual dysfunction compared with the placebo groups after the four trial weeks.

4.6 Orgasmic impairment management

4.6.1 Pharmacological interventions

[68] showed a statistically significant improvement in sexual function in women with psychotropic medication-induced sexual dysfunction treated with the phosphodiesterase type 5 inhibitor sildenafil.

4.6.2 Behavioral interventions

[69] advocated the use of rigorous stimulation with a vibrator in women with psychotropic medication-induced sexual dysfunction, with a precedent outcome of decreasing tactile sensitivity.

4.6.3 Other interventions

A randomized trial conducted by [70] showed that 3 g of Lepidium meyenii, known as maca root, taken daily for a 12-week trial period, produced a statistically significant improvement in sexual function among patients diagnosed with psychotropic medication-induced sexual dysfunction.

4.7 Improving all domains of the sexual cycle in psychotropic medication-induced sexual dysfunction

4.7.1 Pharmacological management

[63] provided ample evidence that switching from psychotropic drugs with more adverse sexual effects to drugs with few side effects, such as changing from SSRI to SNRI antidepressants, helped better manage psychotropic medication-induced sexual dysfunction cases, while maintaining a similar efficacy of the medications. This observation has been supported by several studies, including [71].

As suggested by several studies, drug holidays are flawed by withdrawal symptoms, relapse, and increased medication non-adherence, making them a less feasible intervention strategy [72]. [10] suggested waiting

for improvements in sexual function, as evidenced by remittance of most adverse psychotropic medication sexual side effects after six months in about 80% of patients [43]. However, several studies have challenged this, highlighting that remittance after six months is only possible for 10% of patients.

A reduction in dosage has been proposed, although this intervention is flawed by its ability to cause disease recurrence [73].

4.7.2 Behavioral interventions

Psychotherapy, such as cognitive behavioral therapy, that is focused on sexual dysfunction along with psychoeducation may help lessen the severity of side-effects, prevent worsening of the primary illnesss and help cope with the sexual side effects [74].

4.7.3 Other intervention strategies

A controlled study by [75] showed significant sexual improvements after the administration of Rosa damascene oil, due to its association with improved sexual function and reduced sexual pain.

4.8 Limitations

This review faced a number of challenges. First, most included studies were funded by pharmaceutical companies worldwide. Thus, it is essential to consider whether independent studies could have produced different outcomes. Second, the lack of large-scale RCTs investigating the impact of psychotropic medication on sexual dysfunction limited the review to observational and cross-sectional studies with very high heterogeneity scores. Third, some commonly used psychotropic medications were excluded, which introduced reporting bias to the review. Fourth, some older studies that sought analysis and review did not have a standardized data collection protocol. The lack of CSFQ-14- or ASEX-validated questionnaires is restricted to recent studies. Finally, most of the included studies focused on patients with moderately to commonly treated psychotropic diseases and moderate drug allocation. Patients with well-treated psychotropic conditions were excluded from this analysis.

5. Conclusion

Overall, psychotropic medication-induced sexual dysfunction adversely affects patient's quality of life, as evidenced by their impact on nonadherence to medication regimes. All psychotropic medications have been documented to contribute to widespread sexual dysfunction in patients. However, it remains extremely difficult to assess and analyze the effect of these medications in the global population. The lack of consensus in conclusions by different researchers has posed more problems to clinicians and prospective researchers

These differences have mainly been attributed to the significant heterogeneity of the data collection and analytical methods employed to assess and evaluate sexual dysfunction. Therefore, this review advocates the need for extensive and comprehensive studies linking sexual dysfunction and psychotropic medications.

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