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# Impact of antipsychotics on the sexuality of patients diagnosed with schizophrenia

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## Abstract

**Background:** Sexuality is a natural component of human behaviour. The general population has been extensively studied since the first half of the 20th century. On the other hand, regarding patients treated for Schizophrenia (SCZ), discussing sexual disorders was initially considered inappropriate because it was thought they should not be sexually active. Given these findings, this work proposes to study the sexuality of patients with SCZ.

**Aim:** Our objectives were to assess the sexuality of patients with schizophrenia, to identify factors associated with sexual dysfunction among these patients, and to determine practitioners' attitudes toward the sexuality of our study population.

**Methods:** This is a cross-sectional study carried out in the psychiatry department of Kairouan (outpatient department), including 46 patients diagnosed with schizophrenia. A pre-established information sheet was completed for each patient recruited, including socio-demographic and clinical data; on the other hand, three scales ensured a sexual psychometric evaluation: Psychotropic-Related Sexual Dysfunction Questionnaire PRSexDQ - SALSEX), Arizona Sexual Experiences Scale (ASEX) and Changes in Sexual Functioning Questionnaire - Male Clinical Version (CSFQ -M -C).

**Results:** Concerning the evaluation of sexuality according to the scales used, SD according to the PRSexDQ-SALSEX scores was observed in 31 patients (67.4%). According to the ASEX scores, 24 patients (52%) had a SD, and for the total score of the CSFQ-M-C, 27 patients (58.7%) had a SD. We cannot confirm the existence of a relationship between the dose of the current treatment (in chlorpromazine equivalent) used and the results of the test assessing sexuality. In addition to these results, we can deduce the existence of a statistically significant association between the antipsychotic used and the results of the PRSexDO-SALSEX only.

**Conclusions:** we recommend that screening for SD in patients followed for SCZ should be systematic, regardless of the AP molecule type and dosage. In this regard, we recommend the establishment of a better therapeutic relationship between caregivers and patients followed for SCZ, based on empathy and trust, so that the latter feel comfortable enough to address the sexual dimension in general and SD in particular.

**Keywords:** Sexuality; Schizophrenia; Antipsychotic; Side effects; Stigmatization.

**Abbreviations:** SCZ : Schizophrenia; SD: Sexual Dysfunction; AP: Antipsychotic; AAP: Atypical Antipsychotic; TAP: Typical Antipsychotic; Sd: syndrome; PRsexDQ-SALSEX: Psychotropic-Related Sexual Dysfunction Questionnaire; ASEX: Arizona Sexual Experiences Scale; CSFQ-M-C: Changes in Sexual Functioning Questionnaire – Male Clinical Version.

## Introduction

Sexuality is a natural component of human behavior. The general population has been extensively studied since the first half of the 20th century. It is now accepted that sexual activity and satisfaction contribute significantly to a person's quality of life [1,4]. However, for patients with severe and disabling mental disorders such as SCZ, sexual functioning has received little attention in the management, which should be comprehensive [5]. Indeed, discussing sexual disorders with patients with SCZ was initially considered inappropriate because it was thought they should not be sexually active. Even up to the 1970s, some psychiatrists believed that sexual activity contributed to the development of the disorder [6]. Although these beliefs no longer exist, little work has been done to study the sexual behaviour of patients diagnosed with SCZ [2,7].

At least four elements intervene in the sexuality of the patient suffering from SCZ [8]: The disease, the psycho-social factors, the state of bodily health, and the pharmacotherapy (mainly antipsychotics). Antipsychotic treatment is the cornerstone of the treatment, to which psychotherapy and social rehabilitation are added [13]. Antipsychotics are divided into typical antipsychotics (TPA), also known as first-generation antipsychotics, and Atypical Antipsychotics (APA), named by some authors as second-generation antipsychotics. Talking about antipsychotics (AP) available in Tunisia, according to the official site of the Tunisian central pharmacy [9] and according to several experts [10], the most commonly used antipsychotics are haloperidol, fluphenazine, and chlorpromazine as typical antipsychotics and olanzapine, risperidone, amisulpride and clozapine as atypical antipsychotics.

In addition, Sexual Dysfunction (SD) has been reported as an adverse effect of all antipsychotics [11]. Thus, it seems important to quantify the prevalence of this adverse effect in the populations of patients diagnosed with SCZ. However, we note that the work carried out in Tunisia are few and concerns minimal samples of patients.

Given these findings, this work proposes to study the sexuality of patients with SCZ. Our objectives were to assess the sexuality of patients with schizophrenia, to identify factors associated with sexual dysfunction among these patients, and to determine practitioners' attitudes toward the sexuality of our study population.

## Methods

**Characteristics of the study:** This is a cross-sectional study carried out in the psychiatry department of Kairouan (outpatient department).

We recruited 46 patients at the consultation of the psychiatry department of Ibn-El-Jazzar hospital, according to the following criteria:

### Inclusion criteria

Patients followed for SCZ according to the Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5); 18 years of age or older; Male; Clinically stabilized for at least three months and not hospitalized for at least six months; Patients who have given consent to participate in the study.

### Non-inclusion criteria

Refusal to participate in the study; Patients followed for another mental disorder; Age under 18 years; Patients suffering from an intellectual development disorder according to the DSM -5 criteria or dementia; Somatic comorbidity that may lead to a sexual disorder (diabetes, another endocrinopathy, neurological disease, poorly balanced cardiovascular disease, etc.); Association of another treatment that may lead to a sexual disorder; Poor compliance.

### Conduct of the study

The study was conducted after free and informed oral consent from all participants in compliance with COVID-19 restrictions. Patients were recruited over five months between February and June 2022. A single examiner, a psychiatric resident, conducted the interviews. They took place in the Ibn-El-Jazzar Hospital (outpatient psychiatry) and had an average duration of 1 hour. We filled in the information sheet through the medical record and the interview. Afterwards, we proceeded to the psychometric evaluation.

### Evaluation tools

A pre-established information sheet was completed for each patient recruited, including socio-demographic and clinical data and three questions in the therapeutic context: whether sexuality had been previously addressed by the treating physician(s) and, if so, whether there had been any therapeutic intervention. If the patient himself has previously discussed sexuality and if the patient has already been informed of the possibility of iatrogenic DS. A psychometric evaluation with the help of 3 scales:

**Psychotropic-Related Sexual Dysfunction Questionnaire PRSexDQ - SALSEX:** Translated as "Psychotropic-Related Sexual Dysfunction Questionnaire", the PRSexDQ -SALSEX is a hetero-questionnaire designed to screen for the effect of psychotropic treatment on the respondent's sex life. This questionnaire first showed good psychometric properties in patients with depression in 2000 and was validated to explore sexual functioning in patients with SCZ in 2008. An SD is defined based on the total score: mild: 1 to 5, with no item≥2; moderate: 6 to 10, meaning one item=2, with no item≥22 3; severe: 11 to 15, meaning one

item≥3.

**Arizona Sexual Experiences Scale (ASEX):** The Arizona Sexual Experiences Scale (ASEX) is a 5-item scale developed in 2000 that quantifies libido, arousal, vaginal lubrication or penile erection, ability to reach orgasm, and orgasm satisfaction. It assesses sexual activity involving a partner and/or masturbation. It has been validated in outpatients with SCZ and schizoaffective disorder. Items are measured on a 6-point scale [1-6], with higher scores reflecting impaired sexual function. The female and male versions of the ASEX differ on question 3 regarding erection/lubrication; thus, we retained only version 3A, specific to male subjects. DS is defined as a total score ≥19, an item with a score ≥5, and three items with a score ≥4.

**Changes in Sexual Functioning Questionnaire - Male Clinical Version (CSFQ -M -C):** The "Changes in Sexual Functioning Questionnaire". It is a 14-item self-assessment instrument published in 2006 that assesses behaviours and/or problems in the three phases of the sexual response cycle (desire, arousal, orgasm). The CSFQ -M -C provides scores on the five subscales of the original form of the questionnaire. Items 10 and 14 are not specific to any phase of the sexual response cycle as they track pain during erection or orgasm, and the first item reflects pleasure and satisfaction. The 14 items are scored by the patient from 1 to 5 (increasing intensity or frequency), except for items ten and 14, for which the intensity or frequency decreases from 1 to 5. The total score varies from 14 to 70. Higher scores reflect better sexual functioning and vice versa. For the male version, scores below equal to the following thresholds indicate DS: pleasure (item 1): 4; desire /frequency (items 2 and 3): 8; desire/interest (items 4 to 6): 11; excitement/erection (items 7 to 9): 13; orgasm/ ejaculation (items 11 to 13): 13; total score: 47. We chose this questionnaire because it takes all the domains of human sexuality (desire, excitation, pleasure, orgasm).

**Statistical analysis**

The data were entered and analyzed using SPSS ® Statistics version 24. For the qualitative variables, we calculated the simple frequencies and the relative frequencies (percentages). We determined the means, standard deviations, and extreme values for quantitative variables. The Shapiro-Wilk test within the sample verified the normality of the distribution of the continuous variables. The chi-square test of independence is a statistical hypothesis used to determine whether two categorical or nominal variables are likely to be related. In case of invalidity of this test (due to the low number of employees), we used the two-tailed Fisher exact test. The comparison of two averages was carried out using the Student's test and the Mann-Whitney test (in case of non-validity of the normality hypothesis) for independent samples, taking into account the homogeneity of the variances in each case (verified by Levene's test). The comparison of more than two means was carried out by the ANOVA test and the Kruskal-Wallis test (in case of non-validity of the normality hypothesis). The correlation between the dose of the main antipsychotic drug and the sexuality evaluation scores was done by calculating the Bravais- Pearson linear correlation coefficient r. In all statistical tests, the risk of error α was set at 0.05 according to the classical approach, and the p≤0.05 reflect statistically significant results according to the Neyman-Pearson approach; we consider p-values of 0.05 to 0.15 to be close to significance.

### Ethical considerations

Before starting our study, we requested the approval of the ethics committee of Ibn -El -Jazzar Hospital (Kairouan)- Sousse university, which was obtained in February 2022. Each patient recruited freely gave oral consent based on complete, precise, properly conveyed and understood information. We also ensured the anonymity and confidentiality of the collected data and declared that we had no conflict of interest in this study.

## Results

### Socio-demographic and clinical data

The ages ranged from 18 to 68 years. The mean age of this group was 35.72 years, and the standard deviation was 9.133. Twenty patients were from urban areas, or 43.4% of the patients, against 26 patients from rural areas or 56.5% of the patients. There were 25 patients (54.3%) from primary school, 13 (28.3%) from secondary school and eight patients (17.4%) with an academic study level. 27 (58.7%) of the group were single, and 19 (41.3%) were unemployed (Table 1).

Our results show that 63% of the patients had no previous somatic history. The disease duration was between 1 and 40 years, with an average of +/-18.83. The duration of the untreated psychosis (in years) was between 0 (brutal mode of entry into schizophrenia by brief psychotic disorder) and 12 years, with an average of 2.41 years. The number of hospitalizations for our sample ranged from 0 to 14, with an average of 5.24. The duration of the current treatment was between 1 and 17 years, with an average of 7.3 years. The chlorpromazine equivalent for our sample was between 150 and 1200 mg, with an average of 488 mg. The number of psychotropic drugs prescribed was between 1 and 3 for each patient, and the average was 2. (Table 2).

**Table 1:** Socio-demographic data.

| | Number/percent (%) |
|---|---|
| **Age (years)** | average+-DS<br>35,72+- 9.133<br>(range 18-68) |
| 18 - 29 years old | 6 |
| 30 - 39 years old | 14 |
| 40 - 49 years old | 13 |
| 50 years and older | 13 |
| **Level of education** | |
| Primary | 25 (54,3%) |
| Secondary | 13 (28,3%) |
| Academic | 8 (17,4%) |
| **Martial status** | |
| Single | 18 (39,1 %) |
| Married | 19 (41,3%) |
| Separated | 9 (19,6 %) |
| **Professional status** | |
| Unemployed | 19 (41,3 %) |
| Regular work | 19 (41,3%) |
| Irregular work | 8 (17,4 %) |
| **Monthly income** | |
| Less than 400 dt/month | 22 (47,8%) |
| Between 400 and 800 dt/month | 14 (30,4%) |
| More than 800 dt/month | 10 (21,7 %) |
| **Habitat environment** | |
| Urban area | 20 (43,4%) |
| Rural area | 26 (56,5% ) |

**Table 2:** Socio-demographic data.

| **Somatic history** | **Number/percent (%)** |
|---|---|
| With | 17 (37%) |
| Without | 29 (63%) |
| **Substance abuse** | |
| Tobacco | 29 (38,7%) |
| Alcohol | 13 (17,3%) |
| Cannabis | 13 (17,3%) |
| Other substances mainly sniffing products (Naffa) | 0,27 |
| **Evolution of Schizophrenia**<br>**Duration of untreated psychosis** | 1-40 years |
| | Mean: 18.83 years |
| | Standard deviation: 8.85 |
| | 0-12 years |
| | Mean: 2.41 years |
| | Standard deviation: 2.5 |
| **Number of hospitalizations**<br>**Current treatment duration** | 0-14 |
| | Mean: 5.24 |
| | Standard deviation: 3.2 |
| | 1-17 years old |
| | Mean: 7.3 |
| | Standard deviation: 4.03 |
| **Current treatment dose (chlorpromazine equivalent)**<br>**Number of psychotropic drugs prescribed** | 150-1200 mg |
| | Mean: 488 mg |
| | Standard deviation: 315 |
| | 1-3 |
| | Mean: 2 |
| | Standard deviation: 680 |
| **Number of doses per day**<br>**Prescribed antipsychotic drug families**<br>Long-acting antipsychotics | 1-3 |
| | Mean: 2 |
| | Standard deviation: 701 |
| | 15 (32,6%) |
| AAP with a long-acting antipsychotic | 15 (32,6%) |
| AAP alone | 10 (21,7%) |
| TAP alone | 6 (13% ) |

According to our results, our population had other treatments associated with the antipsychotic; they are summarized in Table 3.

**Table 3:** Psychotropic drugs used other than antipsychotics.

| Associated treatment | n | Percentage |
|---|---|---|
| Antidepressant | 8 | 14,5 |
| Benzodiazepine | 6 | 10,9 |
| Trihexyphenidyl (Artane*) | 5 | 9,1 |
| Biberidene (Akineton*) | 21 | 38,2 |
| Antiepileptic | 9 | 16,4 |
| No other psychotropic drugs | 6 | 10,9 |
| Total | 55 | 100 |

## Therapeutic management of sexuality in patients treated for schizophrenia

Concerning the notion of therapeutic education by physicians on the adverse effects of APs during initiation or after therapeutic adaptation (dosage/molecules), 36.96% confirmed (n=17) this role of a physician, while 63.04% denied it (n=29). Concerning the notion of therapeutic education by doctors on the sexual adverse effects of the APs used during the initiation or after therapeutic adaptation (dosage/molecules), 30.4% confirmed (n=14) this role. In comparison, 69.6% denied it (n=32). According to our results, 45.7% of the patients (n=21) spontaneously reported a sexual dysfunction during the interviews with their treating physicians. On the other hand, 54.3% of the patients (n=25) denied this fact. Twenty-two patients spontaneously reported the notion of sexual dysfunction to their doctor. For 50% of them (n=11), the therapeutic attitude was an adaptation of AP doses; for 27.3% (n=6), the attitude was empathetic listening to the patients, and in 22.7% of the cases (n=5), the choice was oriented towards the addition of another treatment (sildenafil/tadalafil).

## Sexual fantasies

According to our results, 56.5% of the patients (n=26) reported the existence of a sexual fantasy during the data collection period; on the other hand, 43.5% (n=20).

**Use of 5-phosphodiesterase inhibitors:** According to our results, 30.4% of the candidates (n=14) confirmed that they had used the 5-phosphodiesterase inhibitor without a medical prescription, while 69.6% of the patients (n=32) denied it.

## Psychometric assessment

**Psychotropic-Related Sexual Dysfunction Questionnaire (PRSexDQ- SALSEX):** The mean total score was 3.4, with a standard deviation of 2.781, and scores ranged from 0 to 13. The SDs, according to the PRSexDQ-SALSEX scores, were 31 (67.4% of patients). Table 4 shows the frequencies of mild, moderate and severe SDs according to PRSexDQ-SALSEX scores (Table 4).

**Table 4:** PRSexDO-SALSEX Results.

| SD | Frequency | Percentage |
|---|---|---|
| Mild | 8 | 17,39 |
| Moderate | 14 | 30,43 |
| Severe | 9 | 19,56 |
| Total | 31 | 67,4 |

**Arizona Sexual Experiences Scale (ASEX):** The mean of the total scores was 18.8, the standard deviation was 3.593, and the scores ranged from 9 to 26. According to the scores, 52% of the cases (24 patients) had SD.

**Changes in Sexual Functioning Questionnaire - Male Clinical Version (CSFQ-M-C):** For the total score of the CSFQ-M-C, 27 patients (58.7%) had an SD. The mean was 55.63, the standard deviation was 9.69, and the scores ranged from 22 to 68. The sub-scores are presented in Table 5.

**Table 5:** CSFQ-M-C results.

| Subscore of : | Number of patients having an SD | Percentage of patients |
|---|---|---|
| **Pleasure** | 24 | 52 % |
| **Desire/frequency** | 29 | 63% |
| **Desire/interest** | 33 | 71% |
| **Excitement/erection** | 36 | 78% |
| **Orgasm/ejaculation** | 38 | 82% |

### Association between antipsychotic drug doses (chlorpromazine equivalent dose) and sexuality assessment scores

We cannot confirm the existence of a relationship between the dose of the current treatment (in chlorpromazine equivalent) used and the results of the test assessing sexuality. The PRSexDQ-SALSEX test results are unreliable because the Student's exact test and the Kruskal-Wallis test showed p-values greater than 5%. The same is true for the results of the ASEX test since the Student's exact test and the Mann-Whitney test show p values greater than 5%. The existence of this relationship cannot be confirmed with the results of the CSFQ-M-C test because the correlation value is almost zero.

### Association between antipsychotic drug family and sexuality assessment scores

We can reduce the existence of a statistically significant association between the antipsychotic used and the results of the PRSexDO-SALSEX test because the Fisher exact test shows a p-value equal to 0.032, which is less than 5%. On the other hand, we cannot confirm the existence of a relationship between the antipsychotic used and the results of the ASEX test because the Fisher exact test shows a p-value equal to 0.271, which is greater than 5%. We cannot confirm the existence of a relationship between the antipsychotic used and the results of the CSFQ-M-C test because the Kruskal Wallis test shows a p-value equal to 0.558, which is greater than 5%.

## Discussion

Since sexuality is a dimension of life, several factors can intervene [8]. We tried to limit the confounding bias of these factors by not including patients with somatic comorbidities that could lead to a sexual disorder; patients taking a treatment that could induce a sexual side effect; those suffering from an intellectual development disorder; and those with poor or doubtful compliance. In addition, we attempted to strengthen the probity of our study by using three questionnaires exploring the sexual life of each patient to include all dimensions of human sexuality and to screen for possible consequences in case of SD related or not to the intake of a AP. Finally, we would like to emphasize that the sample size of our study (46 patients) is comparable to the majority of published studies on the sexuality of patients followed for SCZ.

Relating to the reporting bias, in the context of the doctor-patient relationship, there is an important notion that particularly concerns our study: the notion of "the unspoken". Several authors [12] have studied the most frequent domains and the determinants of unspoken words, and it turns out that the genital sphere and sexuality are the most frequent domains, particularly in the countries of the Arab-Muslim world [13]. Thus, given the sensitivity of the subject investigated, the proportions of SD in our results may be underestimated because they are under-reported by the patients questioned. Regarding the possibility of polytherapy, in our sample, 58% of patients were under several psychotropic treatments. This raises the problem of distinguishing the effects of the various other treatments on the sexuality of the patients.

**Therapeutic management of sexuality**

According to a review of the literature, the data of our work reflecting the management and approach of SD in patients with schizophrenia appear to be consistent with the research on this topic. Indeed, the prevalence of SD in the general population is significant and still important in patients with SCZ. According to several authors [14,5], SD in this population is grossly underestimated by treating physicians. Bernard et al. confirm that the prevalence of SD in their sample was 24% when subjects spoke spontaneously about it and 63% when they were questioned by a physician who discussed sexuality. In fact, in treated and stabilized patients, the prevalence of SD ranges from 15% to 88%, according to the studies of Kockott et al. [15]. This prevalence is probably underestimated, as the patients in this study spontaneously reported sexual problems in 15% of cases.

In contrast, this incidence rises to 88% if the physician asks the question. Some more recent studies [16,17] have found higher incidences of SD, up to 80-90% for patients followed for SCZ, regardless of sex or age. These studies' increase in SD rates is probably related to using self-questionnaires.

In this context, Dr Lazard [18] discussed in his work on schizophrenia and sexual dysfunctions published in 2008, the hostility towards systematic screening for SD, and he put forward several explanatory hypotheses: Physicians' lack of interest in sexuality, lack of skills in sexology; Fear that is addressing sexuality is perceived as a factor of decompensation by poor compliance with treatment, or even induce hostility towards treatment; Physicians objectify that addressing sexuality with patients followed for SCZ would not bring reliable data. Thus, we can hypothesize that this low incidence of spontaneous discussion of SD

problems and the ignorance of sexuality on the part of the treating physicians are the origin of poor and inadequate management.

According to our results, 30.4% of the candidates (n=14) confirmed that they used five phosphodiesterase inhibitors without a medical prescription; on the other hand, 69.6% of the patients (n=32) denied this. The ignorance of sexuality can explain these results by the practitioners and the tendency of the patients to solve their problems in all intimacy by referring to their cultural and social beliefs, especially with the effectiveness of these molecules with SD. In this context, Gopalakrishnan et al. studied the efficacy and tolerability of sildenafil in 32 patients with iatrogenic SD secondary to AP by antipsychotics [19]. One of the basic inclusion criteria for the study was being sexually active with a spouse at the time of the study. Patients ranged in age from 20 to 45 years. According to this work, 31 patients reported a significant improvement in the number of erections, the duration of penetration, as well as satisfaction during intercourse after 15 days of treatment. Most patients completed the study (96%), and no participant left due to an adverse drug reaction.

**Factors that may be associated with sexual dysfunction according to possible associations**

First, we note that the rate of SD according to the three scales we used is not the same. These disparities in the rate of SD could be explained by: the sensitivity of the different scales. The PRSexDQ- SALSEX may be more sensitive than the ASEX or the CSFQ-M-C in detecting SD, hence its higher positivity rate. We note that the range of responses for each item of the PRSexDQ-SALSEX has only four possibilities, whereas there are six possibilities for each item of the ASEX and five for the CSFQ-M-C. The wording of the questions in the scales can also explain this. Because the answer choices for the PRSexDQ-SALSEX items involve some degree of approximation (less than 25%, 25-75%, more than 75% of the time), whereas for the CSFQ- M-C, the answer choices are more precise (≤ once/month, once/month to twice/week, ≥ twice/week).

According to our results, we can confirm the existence of an association between the family of antipsychotics used and the results of the PRSexDO-SALSEX test showing SD. Indeed, a Chinese study published in 2011 that included 100 patients [20] noted that the ASEX scores were higher in the group of patients under TAP, which shows that sexuality in patients depends on the class of the molecule prescribed. Indeed, these patients received antipsychotic monotherapy with clozapine (n = 37), risperidone (n = 30), chlorpromazine (n = 21), haloperidol (n = 9) and olanzapine (n = 3). Referring to the ASEX questionnaire, patients were divided into two groups, the confirmed SD group (n = 47) with a mean ASEX score of 23.57 (± 3.02) and the normal sexual functioning group (n = 53) with a mean ASEX score of 13.19 (± 2.36). The clinical characteristics of the two groups showed no significant differences in age, duration of current medication, age of onset or chlorpromazine dose equivalent.

A review of the literature regarding SDs in people with schizophrenia developed by Peter.M in 2007 [21] highlighted that some of the articles reviewed point out that AAPs seem to have a better tolerance for sexuality than TAPs. Also, according to this work, the role of prolactin is still poorly known, as SD is also found in patients treated with APs that do not increase prolactin levels.

According to Bitner et al. [22], the hypothalamic paraventricular nucleus may be a site of erectile activity mediated by the D4 dopamine receptor. Since a selective antagonist of D4 diminished this activity by APs, he could hypothesize that antipsychotics with a high affinity for the D4 receptor (such as clozapine) have a higher risk of SD.

A 2012 review by Luciana. V of strategies for treating antipsychotic-induced sexual dysfunction and/or hyperprolactinemia in patients with schizophrenia showed that managing AP-induced SD and/or hyperprolactinemia must be handled very carefully. Indeed, various APs carry a risk of SD despite a minimal effect on prolactinoma, hence switching to an antipsychotic with a better profile (such as aripiprazole) seems desirable. In the same context, the use of 5-IPDEs may be useful.

Regarding the association of SD and chlorpromazine dose equivalent: We could not confirm the existence of an association between the dose of the current treatment (in chlorpromazine) and the results of the sexuality assessment test. Indeed, a cross-sectional study developed in China by Norio et al. [23] and published in 2012 investigating the association between chlorpromazine doses and the prevalence of SD in patients with Schizophrenia (N = 191) treated with aripiprazole, haloperidol, olanzapine and risperidone suggested a correlation between the equivalent chlorpromazine dose of AP in only some types of SD (such as increased sexual desire and ejaculatory dysfunction ) in these patients. Furthermore, in this same research framework, another cross-sectional study developed by BoBes.J et al. in Spain and published online in 2010 [24] in schizophrenic patients treated with haloperidol, olanzapine, quetiapine or risperidone (N = 636) showed that the prevalence of sexual dysfunction appeared to be dose-dependent for certain molecules such as olanzapine and risperidone. A review summarises the management of AP-related adverse effects by Labed et al. In 2020 [25], dose reduction of antipsychotic drugs appear to be recommended as first-line treatment for sexual dysfunction. Finally, although SD can be increased dose-dependent with APs, further investigation is needed into the threshold doses of each molecule.

We also recommend that screening for SD in patients being followed for SCZ should be systematic, regardless of AP molecule type and dosage. This could contribute to the sexual health of these patients, but above all, avoid poor compliance with treatment, especially as the patients in our sample rarely raise the subject of sexuality with their carers. Similarly, we remind that the National Institute for Health and Clinical Excellence (NICE) recommends using AAPs as first-line treatment for patients followed for SCZ, as they are less likely to cause adverse effects, particularly sexual ones, according to current literature. However, these results were not verified in our work.

Concerning the information provided to patients by the treating physicians about sexual side effects, the results are of paramount importance: the patient is rarely made aware of this possibility at the start of treatment. We, therefore, recommend that patients being followed for SCZ should be given full and accurate information about possible iatrogenic SD, reassuring them of the treatment options available in this case.

## Conclusion

Our study has shown that practitioners tend to neglect screening for SD in patients followed for

schizophrenia, which may be responsible for poor compliance in a significant proportion of our sample. We found that more than half of our population suffered from SD using all three scales. We also confirmed the existence of a statistically significant association between the family of antipsychotics prescribed and the PRSexDQ-SALSEX scale.

In conclusion, screening for SD in patients followed for SCZ should be systematic, regardless of the AP molecule type and dosage. In this regard, we recommend the establishment of a better therapeutic relationship between caregivers and patients followed for SCZ, based on empathy and trust, so that the latter feel comfortable enough to address the sexual dimension in general and SD in particular.

## Declarations

**Statement of ethics:** This study was conducted following the ethical standards of the Declaration of Helsinki, and the confidentiality of patients' data was respected. Written informed consent was obtained from the participant.

**Patient consent:** The patient has given consent for possible publication of this case report.

**Conflict of Interest Statement:** No conflict of interest to disclose

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## References

1. Mj O, AS, Pb M. Schizophrenia. Lancet Lond Engl [Internet]. 2016; 388.

2. van Os J, Kapur S. Schizophrenia. The Lancet. 2009; 374: 635–45.

3. Vita A, Barlati S. Recovery from Schizophrenia: is it possible? Curr Opin Psychiatry. 2018; 31: 246–55.

4. Simons JS, Carey MP. Prevalence of sexual dysfunctions: results from a decade of research. Arch Sex Behav. 2001; 30: 177–219.

5. Kelly DL, Conley RR. Sexuality and Schizophrenia: A Review. Schizophr Bull. 2004; 30: 767–79.

6. Pinderhughes CA, Grace EB, Reyna LJ. Psychiatric Disorders and Sexual Functioning. Am J Psychiatry. 1972; 128: 1276–83.

7. Tardieu S, Micallef J, Bonierbale M, Frauger E, Lançon C, Blin O. Comportements sexuels chez le patient schizophrène : impact des antipsychotiques. L'Encéphale. 2006; 32: 697–704.

8. de Boer MK, Castelein S, Wiersma D, Schoevers RA, Knegtering H. The Facts About Sexual (Dys)function in Schizophrenia: An Overview of Clinically Relevant Findings. Schizophr Bull. 2015; 41: 674–86.

9. Liste des médicaments [Internet]. [cited 2022 Oct 16]. Available from: http://www.dpm.tn/medicament/humain/liste-des-medicaments

10. Article medicale Tunisie, Article medicale Observance de la prescription , Compliance , Trouble bipolaire [Internet]. [cited 2022 Oct 16]. Available from: http://www.latunisiemedicale.com/index.php/article-medicale-tunisie_2975_fr

11. Kishi T, Ikuta T, Sakuma K, Okuya M, Iwata N. Efficacy and safety of antipsychotic treatments for Schizophrenia: A systematic review and network meta-analysis of randomized trials in Japan. J Psychiatr Res. 2021; 138: 444–52.

12. Gaudin G. Le non-dit dans la consultation de médecine générale. Une étude qualitative sur son importance aux yeux des généralistes. Université de Lorraine. 2013.

13. Dialmy A. Sexuality and Islam. Eur J Contracept Reprod Health Care. 2010; 15: 160–8.

14. Bernard A. Schizophrénie et sexualité: prévalence de la dysfonction sexuelle et impact sur les soins. 2009. 464 p.

15. Kockott G, Pfeiffer W. Sexual disorders in nonacute psychiatric outpatients. Compr Psychiatry. 1996; 37: 56–61.

16. Piontek A, Szeja J, Błachut M, Badura-Brzoza K. Sexual problems in the patients with psychiatric disorders. Wiadomosci Lek Wars Pol. 1960. 2019; 72: 1984–8.

17. Dumontaud M, Korchia T, Khouani J, Lancon C, Auquier P, Boyer L, et al. Sexual dysfunctions in Schizophrenia: Beyond antipsychotics. A systematic review. Prog Neuropsychopharmacol Biol Psychiatry. 2020; 98: 109804.

18. Bonierbale M. Diagnostic et traitements des dysfonctions sexuelles chez le patient schizophrène : enquête de terrain, état actuel des connaissances. 2009.

19. Meltzer H, Massey B. The role of serotonin receptors in the action of atypical antipsychotic drugs. Curr Opin Pharmacol. 2011; 11: 59–67.

20. Zhang XR, Zhang ZJ, Zhu RX, Yuan YG, Jenkins TA, Reynolds GP. Sexual dysfunction in male schizophrenia: influence of antipsychotic drugs, prolactin and polymorphisms of the dopamine D2 receptor genes. Pharmacogenomics. 2011; 12: 1127–36.

21. Malik P. Sexual dysfunction in Schizophrenia: Curr Opin Psychiatry. 2007; 20: 138–42.

22. Bitner RS, Nikkel AL, Otte S, Martino B, Barlow EH, Bhatia P, et al. Dopamine D4 receptor signaling in the rat paraventricular hypothalamic nucleus: Evidence of natural coupling involving immediate early gene induction and mitogen activated protein kinase phosphorylation. Neuropharmacology. 2006; 50: 521–31.

23. Yasui-Furukori N, Fujii A, Sugawara N, Tsuchimine S, Saito M, et al. No association between hormonal abnormality and sexual dysfunction in Japanese schizophrenia patients treated with antipsychotics: Hormone And Sexual Dysfunction. Hum Psychopharmacol Clin Exp. 2012; 27: 82–9.

24. Bobes J, Garc A-Portilla MP, Rejas J, Hern Ndez G, Garcia-Garcia M, Rico-Villademoros F, et al. Frequency of Sexual Dysfunction and Other Reproductive Side-effects in Patients with Schizophrenia Treated with Risperidone, Olanzapine, Quetiapine, or Haloperidol: The Results of the EIRE Study. J Sex Marital Ther. 2003; 29: 125–47.

25. Labad J, Montalvo I, González-Rodríguez A, García-Rizo C, Crespo-Facorro B, Monreal JA, et al. Pharmacological treatment strategies for lowering prolactin in people with a psychotic disorder and hyperprolactinaemia: A systematic review and meta-analysis. Schizophr Res. 2020; 222: 88–96.

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