

Sexual Dysfunction among Females Receiving Psychotropic Medication: A Hospital-based Cross-sectional Study

Veda N. Shetageri, Govind S. Bhogale¹, N. M. Patil², R. B. Nayak³, S. S. Chate²

ABSTRACT

Background: Sexual dysfunction (SD) is a known adverse effect of psychotropic medications. Even though sexual difficulties are common among women; very few studies have been carried out in India. **Objective:** To study the prevalence and nature of SD among females receiving psychotropic medications and to compare the SD among female patients receiving antipsychotics and antidepressants. **Materials and Methods:** Female investigator conducted a hospital-based cross-sectional study on female patients visiting the psychiatry outpatient department. Patients meeting inclusion criteria were assessed for SD disorder as per Diagnostic and Statistical Manual of Mental Disorders 4th Edition Text Revision. SD severity was measured using Female Sexual Function Index (FSFI) scale. **Results:** The prevalence of SD in this study was 68.32%. There was more than one SD in 48 (47.52%). FSFI score was significantly low in patients with SD as compared to patients not having SD ($P = 0.001$). SD was more common in patients who were on combination of antidepressants and benzodiazepines than antidepressant alone or antipsychotic alone. **Conclusion:** SD was prevalent in more than 50% of female patients on psychotropic drugs. Number of patients on individual psychotropic drugs was so small that a definite conclusion could not be drawn. Study emphasizes the need to carry out similar study on larger number of patients to get better insight into this problem.

Key words: *Clinical global impression, female sexual dysfunction, female sexual function index, psychotropics, sexual dysfunction, side effects*

INTRODUCTION

Sexual dysfunction (SD) is not easily disclosed by women and is usually underreported. This is borne out by the fact that surveys of patients attending London

general practitioners offices suggested that each year family practitioners saw several women or couples

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who presented with sexual problems, and the numbers increased when the physician inquired about patients' sexual health.^[1] A review article by Baldwin and Mayers reported that SD in women attending outpatient department (OPD) was between 19% and 50%.^[2] In India, for a woman to discuss problems she faces in her sexual functioning is very challenging due to the male dominated society and puritanical mindset. Despite the common occurrence of sexual difficulties among women, very few studies have been done till date in India.^[3]

Even though SD may occur due to general medical illness or gynecological illness or psychological illness, or due to the use of various medications,^[4,5] most of the previous studies have shown that psychotropic medications have led to SD among female patients on those medications.^[6]

SD is a known adverse effect of antipsychotics.^[7] Prevalence of SD among patients treated with conventional antipsychotics ranged from 30% to 93% in women.^[8] A review article published in 2007 by Higgins indicated that typical antipsychotics have sexual side effects because of their effect on prolactin levels.^[8] Atypical antipsychotics also cause the SD among women.^[9,10]

The incidence of SD differs with different antidepressants.^[11] The overall incidence of SD was 59.1% when multiple antidepressants were considered.^[12] Very few studies have examined SD in patients taking tricyclic antidepressants or monoamine oxidase inhibitors.^[13]

In the case of mood stabilizers, the incidence of SD seemed to be more when benzodiazepines were used in combination with lithium.^[14,15]

Given the findings that psychotropics cause SD among female patients, and given the Indian context where it is very uncommon for a woman to bring forth the difficulties she is facing in her sexual functioning, the cross-sectional study that led to this article was done with the objectives of (a) finding the prevalence of SD among female patients on psychotropics (b) to study the nature of SD (c) to compare the prevalence among female patients on antidepressants with the prevalence among female patients on antipsychotics. The understanding gained through the findings would contribute toward improving compliance by enabling treating doctor to address SD as a side effect of psychotropic medications.

MATERIALS AND METHODS

Source of data

Psychiatry OPD, JNMC, Belgaum, Karnataka, India.

Method of collection of data

Study design

A cross-sectional hospital based descriptive study.

Ethical committee clearance

Obtained.

Sampling procedure

All female patients attending psychiatry OPD and fulfilling the inclusion criteria were included in the study.

Sample size

A review article by Baldwin and Mayers^[2] mentioned the prevalence of female SD ranges from (30% to 93%). At the time of the study, there was no data from India on the prevalence of SD among females. Hence, prevalence was taken as 50% for the sake of calculation of sample size. Therefore, the sample of the study was determined as $n = 100$ with an absolute error of 10.

Duration

One year 3 months (January 1, 2010–April 30, 2011).

Inclusion criteria

- Married female patients between the ages of 18 years and 45 years
- Asymptomatic from current psychiatric illness for at least past 1 month
- Patients on psychotropic medication during the study
- Patients who gave informed consent.

Exclusion criteria

- Age <18 years and >45 years
- Unmarried, divorced, separated female patients
- Patients who had SD even before the onset of psychiatric illness
- Patients suffering with systemic illnesses which may cause SD^[16]
- Patients on commonly used nonpsychotropic drugs which were likely to cause SD.^[17]

Instruments/tools

Clinical global impression

Clinical global impression (CGI) scale with the scores ranging from 0 to 7 was used to assess the severity of illness. Patients who scored between 1 and 3 were considered to be asymptomatic from the underlying psychiatric illness and were included in the study.^[18]

International Classification of Diseases 10th edition Diagnostic Criteria for Research):^[19]

Criteria were used to categorize the psychiatric diagnoses of the patients.

Diagnostic and Statistical Manual of Mental Disorders 4th Edition Text Revision)

This was used to categorize various types of SD.^[20]

Female Sexual Function Index

A multidimensional self-report instrument for the assessment of female sexual function which consists of 19-item questionnaire on various aspects of sexual functioning was administered. Each item was scored with values ranging from 0 to 5. The Female Sexual Function Index (FSFI) score with the high cumulative value indicated that there was no SD and a score with low cumulative value indicated that SD was present.^[21]

Procedure and statistical methods

The study was conducted after obtaining the ethical clearance from the ethical clearance committee at JNMC, Belgaum.

Female patients attending the psychiatry OPD were recruited for the study as per the inclusion and exclusion criteria. Patients included in the study were in remission and were continuously on prescribed psychotropic medications. Diagnosis was made as per International Classification of Diseases 10th Edition Diagnostic Criteria for Research criteria. The type and dosage of the drug were at the discretion of the treating consultant. Based on the CGI score, only those patients who were asymptomatic (CGI score <3) and who were still on psychotropic medications were included in the study and informed consent was obtained from each patient. The female investigator collected the required information about sexual functioning and sociodemographic data using the specially prepared proforma. General physical examination and systemic examination were conducted for each patient.

Diagnostic and Statistical Manual of Mental Disorders 4th Edition Text Revision (DSM-IV-TR) was used to categorize the SD and the severity of SD was assessed using FSFI scale. The FSFI Scale was also translated into local language (Kannada) and the information was gathered.

Data were tabulated using version 17 of the Statistical Package for Social Sciences (SPSS Statistics for Windows, Chicago: SPSS Inc.) and were subjected to appropriate statistical analysis. The value of *P* < 0.05 was considered statistically significant.

RESULTS

The CGI score for 101 asymptomatic (did not exhibit the symptoms of psychiatric illness they were diagnosed with once they started undergoing the treatment and taking the specified psychotropics)

female patients who fulfilled inclusion and exclusion criteria was 1.55 ± 0.62 . The prevalence of SD was high. Of 101 patients, 69 (68.32%) had SD and the rest - 32 (31.68%) did not have SD.

The information in Table 1 shows that there was no significant difference in the presence or absence of SD based on the various groups created based on the demographics.

Depending on the type of illness patients were grouped broadly into psychosis, neurosis, and mood disorders and presence and absence of SD among these were as shown in Table 2. On an average, the patients included in the study had a psychiatric illness for the duration of 4.23 ± 3.85 years.

Of 101 patients, 32 were on only one psychotropic drug. Among these, 17 (16.83%) were on antidepressants, 15 (14.85%) were on antipsychotics and three (2.97%) on mood stabilizers. Table 3 shows the distribution of patients who were on a combination of psychotropics.

Figure 1 shows the changes observed in various attributes describing sexual functioning. Many patients showed a marked decrease.

Table 1: Socio demographic details and SD (n=101)

| Variable | Sexual dysfunction n (%) (mean±SD) | | χ^2/t value | P value |
|------------------|------------------------------------|------------|------------------|---------|
| | Present | Absent | | |
| Age (in years) | 33.39±7.04 | 32.25±6.89 | 0.763 | 0.447 |
| Religion | | | | |
| Hindu | 63 (62.38) | 28 (27.72) | 1.176 | 0.555 |
| Muslim | 5 (4.95) | 4 (3.96) | | |
| Christian | 1 (0.99) | 0 (0) | | |
| Occupation | | | | |
| Homemaker | 61 (60.40) | 29 (28.71) | 0.335 | 0.846 |
| Pvt. Employment | 4 (3.96) | 1 (0.99) | | |
| Govt. Employment | 4 (3.96) | 2 (1.98) | | |
| Residence | | | | |
| Rural | 30 (29.7) | 18 (17.8) | 1.430 | 0.232 |
| Urban | 39 (38.6) | 14 (13.9) | | |

Table 2: SD and psychiatric disorders and their duration (n=101)

| Variable | Sexual dysfunction n (%) (mean±SD) | | χ^2/t value | P value |
|--|------------------------------------|------------|------------------|---------|
| | Present | Absent | | |
| Duration of Psychiatric Illness (in years) | 4.24±4.27 | 4.21±2.77 | 0.03 | 0.973 |
| Classification | | | | |
| Psychosis | 15 (14.85) | 9 (8.91) | 1.773 | 0.412 |
| Neurosis | 12 (11.88) | 8 (7.92) | | |
| Mood disorders | 42 (41.58) | 15 (14.85) | | |

Figure 2 provides the details of diagnostic categories of SD as per DSM-IV-TR. Among the 101 patients included in the study, 69 (68.32%) had SD. The FSFI scores for patients with SD and patients without SD were respectively 57.06 ± 19.20 and 69.38 ± 11.72 . The mean difference was statistically significant ($P = 0.001$). Whereas the FSFI scores across the groups of patients being treated with different groups of psychotropic medications, namely, antipsychotics, antidepressants, and antidepressants + benzodiazepines were, respectively, 64.40 ± 16.26 , 63.24 ± 17.89 , and 57.07 ± 20.35 . These scores did not indicate statistically significant difference.

As shown in Table 4, there was no statistically significant difference between the numbers of people in the groups categorized by the psychotropic drugs administered.

The data in Table 5a show that there was statistically significant difference in the FSFI scores of the groups of patients with and without SD.

The data in Table 5b show that there was NO statistically significant difference in the FSFI scores of the groups of patients being treated with different classes of psychotropics.

DISCUSSION

Totally 101 female patients attending psychiatry OPD who fulfilled the inclusion criteria formed the sample of this study. The CGI score for the sample was 1.55 ± 0.62 which is indicative of the fact that the patients in the sample were asymptomatic as identified in results for at least 1 month preceding the respective interviews. The criterion that patients be asymptomatic is important as that tries to eliminate the cause of underlying psychiatric illness being the prime contributor to SD observed. In the context of patients who had suffered depression, the criterion to include

only asymptomatic patients assumes more importance as studies have shown that there is a positive correlation between Beck's depression inventory score and the SD prevalence. Hence, inclusion of only the asymptomatic patients overcomes an important limitation observed in earlier studies. The sociodemographic details of the patients are as shown in Table 1. The age of the patients ranged from 18 years to 45 years with a mean of 33.03 years and a standard deviation of 6.98 years. This particular age group was chosen to ensure that the effect of menopause did not alter the results of the study. The current study did not find any significant difference ($P = 0.447$) between the presence or absence of female sexual dysfunction (FSD) and age. The previous study done by Laumann *et al.*^[22] also did not find any significant association between FSD and age. The presence or absence of SD did not differ significantly based on the religious beliefs or based on the type of occupation or based on the residential status of the patients. The cross-sectional nature of the study helped avoid any specific group related bias. Other than these, the stringent exclusion criteria

Table 3: Combination of psychotropic drugs used (n=66)

| Variable | Frequency | (n=101) (%) |
|--|-----------|-------------|
| Drugs | | |
| Antidepressants + Benzodiazepines | 41 | 40.59 |
| Antidepressants + Antipsychotics | 09 | 8.91 |
| Antipsychotics + Benzodiazepines | 07 | 6.93 |
| Antidepressants + Antipsychotics + Benzodiazepines | 03 | 2.97 |
| Mood stabilizers + Antipsychotics | 02 | 1.98 |
| Mood stabilizers + Antidepressants + Benzodiazepines | 02 | 1.98 |
| Mood stabilizers + Antipsychotics + Benzodiazepines | 01 | 0.99 |
| Mood stabilizers + Antipsychotics + Antidepressants | 01 | 0.99 |

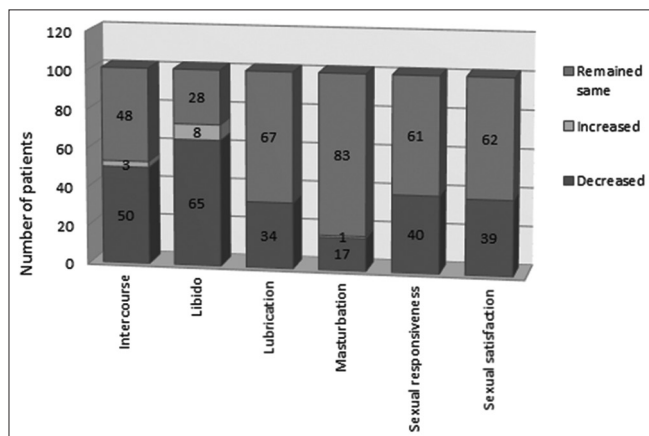


Figure 1: Change in sexual functioning related attributes

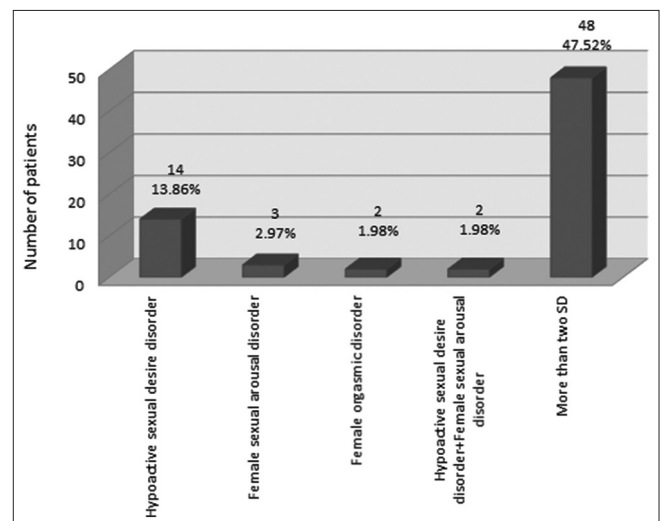


Figure 2: Types of sexual dysfunction among patients

Table 4: SD and commonly used psychotropic drugs (n=73)

| Variable | Drugs n (%) | | | χ^2/F value | P value |
|--------------------|---|------------------------|-----------------------|------------------|---------|
| | Antidepressant + Benzodiazepines (n=41) | Antidepressants (n=17) | Antipsychotics (n=15) | | |
| Sexual dysfunction | | | | | |
| Present | 27 (65.85) | 14 (82.35) | 8 (53.33) | 3.109 | 0.211 |
| Absent | 14 (34.15) | 3 (17.65) | 7 (46.67) | | |

Table 5(a): FSFI scores in patients with SD and without SD (n=101)

| Variable | Sexual dysfunction n (%) (mean±SD) | | χ^2/t value | P value |
|---|------------------------------------|-------------|------------------|---------|
| | Present | Absent | | |
| Female Sexual Function Index (FSFI) score | 57.06±19.20 | 69.38±11.72 | -3.346 | 0.001 |

ensured that patients with other medical conditions or comorbidities which could have caused SD were not included in the study. The criteria to exclude patients with such co-morbidities eliminated other significant shortcomings of earlier study where patients with medical conditions or comorbidities that could have led to SD might have been included in the study.

The patients included in the study had a psychiatric illness for the duration of 4.23 ± 3.85 years as shown in Table 2. More than 2 years "duration" meant that these patients had a chronic psychiatric illness and they were taking psychotropic drugs for a long time.

The most common diagnoses were severe depressive disorder with psychotic symptoms 19 (18.81%), paranoid schizophrenia 13 (12.87%), recurrent depressive disorder current episode severe without psychotic symptoms 9 (8.91%), moderate depressive disorder with somatic symptoms 8 (7.92%), mixed anxiety and depressive disorder 7 (6.93%), dysthymia 7 (6.93%), and obsessive-compulsive disorder 7 (6.93%). Other conditions were few in number (<5%). The patients were broadly grouped under psychosis (major mental disorder) and neurosis (minor mental disorder). In addition as the number of patients with a mood disorder was very high -57 (56.44%). These patients were put in a separate group.

The psychosis group $n = 24$ (23.76%) included patients with paranoid schizophrenia and acute polymorphic psychosis with symptoms of schizophrenia as most common diagnoses. Neurosis group $n = 20$ (19.80%) included patients with mixed anxiety and depressive disorder and obsessive compulsive disorder as most common diagnoses. Mood disorders $n = 57$ (56.44%) included patients with severe depressive disorder with psychotic symptoms, recurrent depressive disorder current episode severe without psychotic symptoms,

moderate depressive disorder with somatic symptoms and dysthymia as most common diagnoses. SD among these three broad groups of psychiatric disorders did not differ significantly ($P = 0.412$). SD did not differ significantly based on duration of illness ($P = 0.973$).

As evident from Table 2, SD was more prevalent in patients with mood disorders 42 (41.58%), followed by patient's with psychosis numbering 15 (14.85%) and neurosis numbering 12 (11.88%). However, difference in prevalence of SD was not statistically significant.

Patients were on regular treatment with either single psychotropic medication or on a combination of multiple drugs. Seventeen patients were on only antidepressants, 15 were on only antipsychotics and three were on only mood stabilizers. Table 3 shows that large number of patients were on combination of an antidepressant with a benzodiazepine ($n = 41$), followed by combination of an antidepressant and an antipsychotic ($n = 9$), and then followed by a combination of antipsychotics and benzodiazepines ($n = 7$). The highest number of patients was on a combination of an antidepressant and a benzodiazepine. Many patients were on these medications as significant number (50) female patients included in the study had mood disorders-predominantly depressive disorder.

Overall prevalence of SD was 68.32%. It is higher than 43% prevalence found among the general female population by the earlier study^[5] in the United States of America. Similar finding of high prevalence of SD in patients who were receiving psychotropic drugs is present in literature.^[2] There has rarely been a study which investigated FSD as an adverse effect of all classes of psychotropic medication. The previous studies by Peuskens *et al.*^[23] and Ghadirian *et al.*^[14] have focused on understanding the female SD as an adverse effect of one class or subclass or a certain specific medication belonging to a specific subclass of psychotropic medications. Hence direct comparisons between the overall rate of prevalence of FSD among patients found in this study and other studies could not be made.

Table 3 shows that the prevalence of SD in the subgroups defined as per the psychotropics used in treatments. In these subgroups, the prevalence among

Table 5(b): FSFI scores and commonly used psychotropic medications (n=101)

| Variable | Drugs | | | F value | P value |
|------------|--------------------------|---------------------------|--|---------|---------|
| | Antipsychotics (n=15) | Antidepressants (n=17) | Antidepressant + Benzodiazepines (n=41) | | |
| FSFI Score | 64.40±16.26 | 63.24±17.89 | 57.07±20.35 | 1.130 | 0.329 |

the female patients being treated with the antipsychotics was 53.33% ($n = 15$), with the antidepressants was 82.35% ($n = 17$) and the antidepressants and benzodiazepines was 65.85% ($n = 41$). The prevalence among these three groups did not show statistically significant difference. The patients on combination of antidepressants and benzodiazepines showed lesser prevalence of SD than the patients on antidepressant alone. This finding is difficult to explain. The current study showed that all psychotropic medications cause SD when used alone or in combinations. There is similar finding from the earlier study by Ernst *et al.*^[24] In this study, prevalence of SD caused by antidepressants was highest (82.35%). However, numbers of patients in the study on antipsychotics ($n = 15$) and on antidepressants ($n = 17$) were too small to draw definite conclusion about relative prevalence.

In Indian culture females do not easily talk about their sexual problems openly. Married female investigator was an asset in reducing the cultural barrier and encouraging these patients to be free in explaining their sexual difficulties. Figure 1 shows that after starting psychotropic drugs there was decreased libido in 65 (64.36%), the frequency of masturbation decreased in 17 (16.83%), the frequency of intercourse decreased in 50 (49.51%), the sexual responsiveness decreased in 40 (39.60%), lubrication decreased in 34 (33.66%), and sexual satisfaction decreased in 39 (38.61%). Thus, more than two-thirds of the patients had decreased libido, almost half of the patients had decreased frequency of intercourse and more than one-third of the patients had decreased sexual responsiveness, decreased lubrication and decreased sexual satisfaction as shown in Figure 1. In this study, however, very few cases had increased libido in 8 (7.92%), increase in masturbation in 1 (0.99%) and increase in frequency of intercourse in 3 (2.97%) which is not expected. In other studies on various psychotropic drugs and their sexual side effects, there was not a single study showing increased sexual function. In terms of sexual side effects of psychotropics increasing sexual performance in these few patients could be the result of improvement of underlying primary psychiatric illness. However, definite reasoning cannot be offered.

Figure 2 shows the diagnostic categories of SD as per DSM-IV-TR. Among the 69 patients who had SD, 48 (47.52%) were affected by more than two types of sexual function disorders, 14 (13.86%) of them had

hypoactive sexual desire disorder, three (2.97%) of them had female sexual arousal disorder, two (1.98%) had female orgasmic disorder, two (1.98%) of them had hypoactive sexual desire disorder along with female sexual arousal disorder. Large majority had two and more SD which suggests that psychotropic drugs could be strong culprits. However, studies on this subject so far are scarce.^[23]

The patients were divided into two groups on the basis of SD being present or absent and the FSFI scores of these two groups were compared and the difference between scores was very significant ($P = 0.001$). Table 5a shows that FSFI score was 57.06 ± 19.20 in patients with SD and 69.38 ± 11.72 in patients without SD. High FSFI scores indicated low SD and low scores indicated high SD.

ANOVA was applied to compare the FSFI scores among the patients who were classified in three broad groups based on the type of psychotropics they were being administered. The results are shown in Table 5b. The mean of FSFI score was low among the group of patients who received antidepressants along with benzodiazepines signifying that this group has higher SD than the groups of patients which received antidepressants and antipsychotics separately. There is no previous study to compare this finding with.

One of the objectives of the study was to compare the SD among the individual group of psychotropics (atypical antipsychotics and SSRIs). The numbers of patients on SSRI's ($n = 5$) and atypical antipsychotics ($n = 12$) were very small. As the numbers of patients on a specific medicine were very small, the patients on all antipsychotics and patients on all antidepressants were clubbed together for statistical analysis. Table 4 shows that the number of patients who were on combination of antidepressants and benzodiazepines and had SD was 27 (65.85%); which was the mid-range compared to the number of people on antipsychotics ($n = 15$) who had SD eight (53.33%) and to the number of people on antidepressants ($n = 17$) who had SD 14 (82.35%). The higher prevalence of SD among patients on antidepressants is consistent with the study carried out by Ernst *et al.*^[24]

To compare the SD among patients receiving antipsychotics and antidepressants, comparisons of

FSFI scores and “sexual function details”/“DSM-IV-TR classified sexual disorders” were made. The comparisons were also made according to whether antipsychotic drug was used or antidepressant drug was used or a common combination of antidepressants and benzodiazepines was used. The results of these comparisons were statistically not significant.

All medications whether single or in combination did cause SD and/or sexual disorder in at least one-third of the patients. As statistically significant difference was not visible and as number of patients treated with each specific type/combination of psychotropics was small, a definite comment could not be made on the propensity of individual type/combination of psychotropics to cause SD or type of SD. The study emphasizes the need to carry out a study on larger number of patients who are on single psychotropic to get better insight into the relationship between the psychotropic and its sexual side effects. This will help in improving the compliance and quality of life for the patients on the psychotropics.

CONCLUSION

The prevalence of SD among female patients who were on one or more psychotropic medications is very high (68.32%). A number of patients on the single psychotropic drug was so small that a definite inference could not be drawn about the causal relationship between the specific drug and the type/prevalence of the SD. The study emphasizes the need to carry out similar studies on larger number of patients who are on a psychotropic drug to get better insight into the problem. The understanding gained will help in ensuring better compliance and improved quality of life for patients on psychotropics.

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Conflicts of interest

There are no conflicts of interest.

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