A Cross-Sectional, Questionnaire-Based Study on Drug Treatment Awareness in Schizophrenia Patients and Caregivers: An Unexplored Avenue

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ABSTRACT

Background: Schizophrenia is associated with high relapse rates, and medication nonadherence is a major factor contributing toward relapse. Since medication adherence and treatment awareness are linked, an alarming need was felt to evaluate the level of drug treatment awareness in patients who have schizophrenia. Besides, patients who have schizophrenia are often dependent on their caregivers for medications. Hence, the current study was also designed to look into drug treatment awareness among caregivers.

Methods: This was a cross-sectional, questionnaire-based study. Patients diagnosed with schizophrenia as per *The Diagnostic and Statistical Manual of Mental Disorders*, Fifth Edition were included, provided they had good insight and had been prescribed medications at the study center for at least three months. Caregivers were included using the Pollak and Perlick criteria. The sociodemographic profile of the patients and caregivers was recorded, and further assessment for treatment awareness was done using the prevalidated Drug Treatment Awareness Questionnaire (DTAQ).

Results: A total of 166 patients and 157 caregivers were enrolled. Mean drug awareness scores among patients and caregivers did not show statistically significant differences (P= 0.22). Mean ± SD DTAQ awareness scores in patients and caregivers were 12.57 ± 1.81 and 12.84 ± 1.91, respectively. The majority of patients and caregivers (> 90%) possessed awareness in domains related to past medication records and in that of re-visit/re-contact instructions. Awareness was least commonly seen in relation to side effects of medications and details of the prescribed medications, where only about 50% of patients and caregivers possessed awareness.

No clinically significant correlation was found between sociodemographic factors and drug treatment awareness scores.

Conclusion: Drug treatment awareness in patients and caregivers was comparable and was not reliant on the sociodemographic factors. Special interventions should be conducted to raise drug treatment awareness among patients having insight and their caregivers.

Keywords: Schizophrenia, Drug treatment, Insight, Awareness, Caregivers

Key Messages: Highest proportions of patients and caregivers had awareness of past medication records and re-visit/re-consult instructions. Awareness was least common in relation to the side effects of medications. Drug treatment awareness in patients and caregivers was comparable and was not reliant on the sociodemographic factors.

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Schizophrenia is a complex, chronic mental illness.[1] It affects almost 20 million people worldwide.[2] The current prevalence rate of schizophrenia in India is 0.42% (95% CI = 0.41–0.44), while the lifetime prevalence rate is 1.41 (95% CI = 1.39–1.43).[3] As per the National Mental Health Survey of India, 2016, among the 7% to 13% of disability-adjusted life years attributed to mental disorders worldwide; India alone accounted for 15% of the disability-adjusted life years. Further, the burden of mental disorders in India is expected to increase by 23% by 2025.[3]

A substantial proportion (50%–80%) of patients with schizophrenia lack insight into their illness and treatment.[4] Approximately 60% of patients falling ill with schizophrenia progress toward chronicity, while only about 25% recover from the illness during the first 5 to 6 years.[5] On account of its chronic nature, schizophrenia necessitates long-term treatment. This problem is further compounded by high relapse rates in schizophrenia. Xiao et al. showed that nonadherent patients had a 2.5-fold increase in relapse rate compared to adherent patients.[6] Thus, medication adherence is an important factor determining the prognosis of schizophrenia. Adequate treatment counseling is important in patients with schizophrenia to improve medication adherence, especially in patients who possess insight.

Various factors contribute to medication nonadherence in patients taking antipsychotics. Common factors include poor insight, substance abuse, negative attitude toward medication, medication side-effects, and cognitive impairment.[7,8] Lack of treatment awareness is a predictor of medication nonadherence. Since adherence and awareness are linked to each other, the authors felt a dire need to assess drug awareness in these patients.[9] There have been studies outside India related to the attitude of patients with schizophrenia toward disease, drug compliance, and drug use, but a sparse number of studies had focused on drug awareness in these patients.[10,11]

Owing to the chronic nature of schizophrenia and the loss of social functioning in the affected patients, there has been a shift of care from hospitals to outpatient treatment, community services, and caregivers of these patients. Caregivers are considered a major source of care for patients with schizophrenia and profoundly affect patient improvement.[12] Since patients with schizophrenia often lack insight, the caregivers need to be aware of the course and consequences of drug treatment. Recognizing the lacunae in the awareness of drug treatment in patients and caregivers is of particular interest to developing specific measures toward this domain. With this view in mind, the authors decided to conduct a study to assess the level of drug treatment awareness in patients with schizophrenia and their caregivers with respect to the side effects, dosing, indication, and duration of prescribed treatment.

Materials and Methods

The current study was a cross-sectional, observational, questionnaire-based study conducted in the psychiatry outpatient department (OPD) of a Tertiary Care Hospital in Mumbai. The study was initiated after obtaining permission from the Institutional Ethics Committee (IEC), and the study was registered with the Clinical Trials Registry of India (CTRI/2018/03/012533). The study was conducted for 18 months, from January 2018 to June 2019. To the best of the authors' knowledge, this is the first study in India to assess medication awareness among patients diagnosed with schizophrenia and their caregivers. Since drug treatment awareness was the primary objective of this study and the authors could not find previous studies pertaining to the same, no formal sample size calculation was done and it was decided that the number of patients recruited would be based on the duration of the study.

Selection Criteria

A convenient treatment-seeking sample of patients was recruited for the study after obtaining their written informed consent. Patients aged 18 to 65 years diagnosed to have schizophrenia as per the *The Diagnostic and Statistical Manual of Mental Disorders*, Fifth Edition criteria were included, provided they had been prescribed antipsychotic medications at the study site for at least three months and had good insight (insight score ≥9) on Birchwood Insight Scale.[13] The exclusion criteria included patients newly diagnosed, treatment naive patients, patients with other psychiatric disorders/neurological disorders, and critically ill patients. For the assessment of caregiver's drug awareness, individuals between the age of 18 years and 65 years accompanying the patients were included if they fulfilled the criteria of being the primary caregivers of the patient as per the Pollak and Perlick method.[14] Caregivers with psychiatric or neurological disorders were excluded. This exclusion was based upon clinical history and psychiatric evaluation conducted by the psychiatrist.

Assessment Tools

The assessment was done using the following scales:

Birchwood Insight Scale (BIS): It is a widely used, prevalidated, self-administered scale that contains eight items grouped under three domains. The domains are related to awareness of symptoms, awareness of the illness, and the need for treatment. Each item is rated on a three-point Likert scale (0 = disagree, 1 = unsure, 2 = agree). The scale has been formulated so that the scores obtained in each domain need to be summed up, except for the need for treatment domain where scores obtained need to be divided by two. The maximum and minimum scores possible on this scale are 12 and 0, respectively. A score of ≥ 9 is indicative of good insight. This scale has been shown to have adequate internal consistency, validity, and sensitivity to change.[13,15] The scale has been used previously in the Indian context.[16] In the current study, the BIS was self-administered by the patient in English/Hindi/Marathi. Forward translation of the BIS from English to Hindi was performed by two independent translators who had Hindi as their mother language. The same process of forward translation was followed for the Marathi version as well. In the next step, backtranslators helped backtranslate the BIS from the vernacular languages back to English. Finally, a discussion was held with a committee consisting of experts who were familiar with the construct of interest and the forward and backward translators. The translated versions in different

languages were approved by the IEC prior to the commencement of the study. The investigator handed over a printout of the BIS to the patients and allotted a maximum time of five minutes to complete the responses.

Drug Treatment Awareness Questionnaire (DTAQ) for Patients: The authors referred to the World Health Organisation's "Guide to Good Prescribing" manual to design the DTAQ questionnaire. The manual mentions important elements about the medications that the doctor must convey to the patients, for example, instructions about how to take medications, side effects, and instructions about the next follow-up.[17] The authors developed the English version of this questionnaire, and it was validated by 12 experts (six pharmacologists, four psychiatrists, one psychologist, and one social worker). Each item in the questionnaire had a content validity ratio of > 0.56.[18] A pilot survey was conducted among 12 patients.[19] On performing the test-retest reliability check, the intraclass correlation coefficient for the questionnaire was found to be 0.799 and was indicative of good reliability.[20,21] The questionnaire had an acceptable internal consistency, with Cronbach's alpha value of 0.74.[22] The DTAQ was further translated into Hindi and Marathi in the same manner as described earlier for BIS in accordance with the existing guidelines for questionnaire translation.[22] The questionnaire consisted of a total of 17 items that were grouped under seven domains. The possible responses were yes/no/cannot say/ refusal to answer. Items 1.1, 1.2, 2, 3, 7, 9, and 10 required further assessment in terms of correctness and completeness of response. The patient was given a score of 1 only if the patient said "yes" and answered correctly and completely. The maximum score that could be obtained is 17, while the minimum score is 0. The same investigator administered the questionnaire to all the patients and entered the scores obtained. Hence, inter-rater reliability was not calculated.

Drug Treatment Awareness Questionnaire for Caregivers: This questionnaire was the same as the patient drug awareness questionnaire, but it was directed toward the caregivers instead of the patients.

Study Procedure

All patients presenting to the psychiatry outpatient department with an assigned diagnosis of schizophrenia were approached for inclusion in this study. The diagnosis of schizophrenia was ascertained as per *The Diagnostic and Statistical Manual of Mental Disorders,* Fifth Edition by a trained psychiatrist, and patients were included if inclusion criteria were fulfilled. If the patient was accompanied by a caregiver who fulfilled the caregiver inclusion criteria, the caregiver was also included in this study. Written informed consent was taken from all the participants (patients and caregivers) in English/Hindi/Marathi. The participants were assessed using the sociodemographic sheet designed for the purpose of the present study and the DTAQ. Assessments were carried out in a single session lasting about 10 to 15 min.

Statistical Analysis

Statistical analysis was carried out using SPSS version 23.0 (Armonk, NY, IBM Corp). Domain-wise and overall awareness scores obtained by patients and caregivers were expressed as mean and standard deviation. Scores obtained by the patients and caregivers were compared using the Mann-Whitney U test, and a P value less than 0.05 was considered statistically significant. Correlation analysis was done between the patient demographic factors such as age, socioeconomic status, literacy level, and drug awareness scores. The correlation coefficient was calculated using Spearman's correlation test. A P value less than 0.05 was considered statistically significant. A similar correlation analysis was done between demographic characteristics of caregivers and caregiver drug awareness scores.

Results

A total of 250 patients were screened and administered the BIS. Of these 250 patients, 166 patients had good insight and were recruited to the study for the assessment of drug treatment awareness. One hundred and fifty-seven caregivers (not more than one caregiver per patient) were also recruited.

Sociodemographic and Clinical Characteristics

The majority of patients (66.27%) and caregivers (65%) were male. Details pertaining to sociodemographic profile as per modified Kuppuswamy Scale[23] are in **Table 1**.

The median duration of schizophrenia in the enrolled patients was eight (IQR: 4–17) years. Diabetes mellitus was seen in ten (6.02%) patients and was the most common physical co-morbidity, followed by hypertension in seven (4.22%) patients.

The number of patients and caregivers who gave correct responses to individual items on the DTAQ are given in **Table 2**.

Drug Treatment Characteristics

The mean number of antipsychotics prescribed to each patient was 1.42 ± 0.54. Among the 166 patients included, second-generation antipsychotics were prescribed to 155 (93.37%) patients, while first-generation antipsychotics were prescribed to 81 (48.8%) patients. Risperidone ($n = 73$) and Olanzapine ($n = 45$) were the most commonly prescribed antipsychotics.

Scores in DTAQ

The majority of the patients (98.80%) and caregivers (94.27%) possessed an awareness of the item pertaining to the number of medications prescribed. Similarly, a high level of patient (97%) and caregiver (95.54%) awareness was seen in the item related to details about the next follow-up visit. The number of patients and caregivers who possessed awareness about individual items pertaining to drug treatment awareness is given in **Table 2**. Awareness was seen most commonly in the domains related to the importance of preserving past prescriptions and the importance of doctor-patient interaction and least commonly in the current prescription and side effects domains.

The mean drug treatment awareness score obtained by patients was 12.57 ± 1.81, while that obtained by caregivers was 12.84 ± 1.91. As shown in **Table 3**, no statistically significant difference was found between the overall scores

TABLE 1.

Sociodemographic Profile of Patients and Caregivers

Demographic Profile		Number of Patients (%) N = 166	Number of Caregivers (%) N = 157
Sex	Males	110 (66.27) Mean age: 42.25 ± 10.58 years	102 (65) Mean age: 47.53 ± 13.68 years
	Females	56 (33.73) Mean age: 39.82 ± 11.58 years	55 (35) Mean age: 40.97 ± 13.26 years
Socioeconomic status	Upper class (26–29)	2 (1.2)	0
	Upper middle (16–25)	58 (34.94)	48 (30.57)
	Lower middle (11–15)	76 (45.78)	57 (36.31)
	Upper lower (5–10)	29 (17.47)	50 (31.85)
	Lower (< 5)	(0.6)	2 (1.27)
Education status	Illiterate	3 (1.81)	4 (2.55)
	Primary school education	11 (6.63)	22 (14.01)
	Middle school education	34 (20.48)	57 (36.31)
	High school education	54 (32.53)	48 (30.57)
	Intermediate education or post high school diploma	41 (24.7)	35 (22.29)
	Graduate	22 (13.25)	12 (7.64)
	Postgraduate or professional degree	1 (0.6)	0

TABLE 2.

Patient and Caregiver Responses to the Individual Items of the Drug Treatment Awareness Questionnaire

Item-Wise Assessment	Domain	Individual Items: Information About -	Number of Patients with Correct Responses (%) n = 166	Number of Caregivers with Correct Responses (%) n = 157
1.1	Domain I: Awareness of current prescription	Number of medicines prescribed	164 (98.80)	148 (94.27)
1.2		Names of medicines prescribed	93 (56.02)	73 (46.50)
2		Dose and dosing frequency of the medicines prescribed	138 (83.13)	140 (89.17)
3		Reasons for which each of the medicines was prescribed	46 (27.71)	49 (31.21)
		Domain I total	441/664 (66.40)	410/628 (65.29)
4	Domain II: Awareness of influence of disease severity, concomitant disease/drug	Factors affecting drugs and their dose	121 (72.89)	113 (71.97)
		Domain II total	121/166 (72.89)	113/628 (71.97)
5	Domain III: Awareness of drug compliance	Dosing schedule	165 (99.4)	157 (100)
6		Skipping doses	153 (92.17)	144 (91.72)
7		What is to be done if the patient skips a medication dose	42 (25.30)	60 (38.22)
8		Stopping medications	116 (69.88)	117 (74.52)
		Domain III total	476/664 (71.86)	478/628 (76.11)

(Table 2 continued)

Item-Wise Assessment	Domain	Individual Items: Information About -	Number of Patients with Correct Responses (%) $n = 166$	Number of Caregivers with Correct Responses (%) $n = 157$
9	Domain IV: Awareness of past medication record	Preserving past prescriptions	156 (93.98)	155 (98.73)
Domain IV total			156/166 (93.98)	155/157 (98.73)
10	Domain V: Awareness of re-visit/re-contact instruction	Next follow-up	161 (96.99)	150 (95.54)
11		Keeping regular follow-up with the consulting physician	159 (95.78)	151 (96.18)
12		Intake of concurrent medications	144 (86.75)	137 (87.26)
Domain V total			464/498 (93.17)	438/471 (93)
13	Domain VI: Awareness of side effects	Occurrence of undesired side effects	49 (29.52)	48 (30.57)
14		Reporting side effects to the doctor	158 (95.18)	151 (96.18)
15		Need for separate treatment to manage side effects	54 (32.53)	74 (47.13)
Domain VI total			261/498 (52.41)	273/471 (57.96)
16	Domain VII: Awareness of long-term treatment	Need for long-term treatment in Schizophrenia	141 (84.94)	128 (81.53)
Domain VII total			141/166 (84.94)	128/157 (81.53)

Note: Complete response indicates a response that is complete as well as correct.

TABLE 3.

Comparison of Scores Obtained by Patients and Caregivers

Domains	Mean Score Obtained by 166 Patients (Mean ± Standard Deviation)	Mean Score Obtained by 157 Caregivers (Mean ± Standard Deviation)	P-Value (Mann–Whitney U Test)
Domain I: Awareness of current prescription	2.67 ± 0.83	2.61 ± 0.88	0.62
Domain II: Awareness of influence of disease severity, concomitant disease/drug	0.73 ± 0.29	0.72 ± 0.26	0.43
Domain III: Awareness of drug compliance	2.88 ± 0.71	3.04 ± 0.70	0.08
Domain IV: Awareness of past medication record	0.94 ± 0.24	0.99 ± 0.11	0.45
Domain V: Awareness of re-visit/re-contact instruction	2.81 ± 0.45	2.79 ± 0.44	0.73
Domain VI: Awareness of side effects	1.57 ± 0.83	1.74 ± 0.85	0.08
Domain VII: Awareness of long-term treatment	0.85 ± 0.36	0.82 ± 0.39	0.60
Overall questionnaire	12.57 ± 1.81	12.84 ± 1.91	0.22

Note: $P < 0.05$ considered statistically significant.

obtained by patients and caregivers (P = 0.22). Similarly, no statistically significant difference was found between the domain-wise awareness scores of patients and caregivers.

Correlation Analysis

No statistically significant correlation was found between the patient drug awareness scores and their age (rho = −0.12; P = 0.14); 95% CI = [−0.27–0.03], socioeconomic status (rho = 0.11, P = 0.15); 95% CI = [−0.04–0.26], or disease duration (rho = 0.02, P = 0.76); 95% CI = [−0.13–0.17]. A weak positive correlation was found between patient drug treatment awareness scores and education (rho = 0.28; P < 0.001); 95% CI = [0.13–0.41]. No statistically significant correlation was found between the drug treatment awareness scores of caregivers and their age (rho = −0.13, P = 0.12); 95% CI = [−0.28–0.03]. A weak positive correlation was found between socioeconomic status and drug treatment awareness scores of caregivers (rho = 0.23, P = 0.01); 95% CI = [0.08–0.37]. Similarly, a weak positive correlation was found between caregiver drug treatment awareness scores and education status (rho = 0.21, P = 0.01); 95% CI = [0.06–0.36]. No correlation was found between drug treatment awareness and insight scores (rho = 0.02, P = 0.84).

Discussion

Schizophrenia is a chronic and debilitating disorder associated with high relapse rates (50%–92%). Nonadherence to treatment is an important factor contributing toward high relapse rates in schizophrenia.[24,25] Since awareness and adherence are linked to each other,[9] it was of great interest to find out the level of treatment awareness in patients undergoing treatment for schizophrenia. We did not find any published study from India that dealt with treatment awareness in patients with schizophrenia or their caregivers. Hence, in the current study, we decided to look into drug treatment awareness in patients with schizophrenia and their caregivers in an Indian setting.

Out of the 166 patients enrolled in this study, the majority (66.27%) were males. Similar findings were seen in a study conducted in Asia by Dong et al., which showed the participation of almost 60% of males and 40% of females

with schizophrenia.[26] Mean age of the patients was 41.50 years ± 10.99 years, and this was similar to a study conducted in China where the mean age of patients with schizophrenia was seen to be 42.46 years ± 1.29 years.[27] A total of 157 caregivers of patients with schizophrenia were recruited. Of these, 65% were males, while 35% were females. In a study conducted by Lasebikan et al., similar findings were seen in terms of male caregivers being in predominance (58%).[28]

Only 66.42% of patients and 65.29% of caregivers responded correctly to the domain related to the current prescription. This indicates that many patients and caregivers lacked sufficient awareness in the current prescription domain. The patients and caregivers need to know about the names of prescribed medications to avoid dispensing errors at the pharmacist level.[29] This is especially true in patients possessing insight since the patients in such cases understand about the disease and need for treatment and have a legal right to take part in decisions related to their health care.[30] McCabe et al. had found that the psychiatrist's response to patients' requests for clarification was associated with an improved level of medication adherence.[31]

More than 70% of the patients and caregivers answered correctly on the domains related to the influence of disease severity or concomitant disease/drug and the domain related to drug compliance. This indicates that although many participants possessed awareness in the aforementioned domains, there was still a scope for improvement. There was a preponderance of patients (93.98%) and caregivers (99.36%) who affirmed that past prescription records of the patients were being maintained. The OPD practices followed at the study center could justify the high level of awareness in this domain. Whenever a patient visits the psychiatry OPD, the patient must carry a file containing records of the previous medications prescribed in the psychiatry OPD. Since antipsychotic medications are supervised medications, the value of prescriptions cannot be disdained. Almost 93% of the patients and caregivers were aware of the importance of regular interactions with the doctor, indicating that the patients were explained well about the follow-up visits. In comparison to other domains, less awareness was seen

in the side effects domain, where 52.41% of patients and 57.96% caregivers were aware about the items pertaining to the domain of side effects of medications. Experts and guidelines suggest that antipsychotics must be chosen based on side effect profiles, which show a considerable variation, rather than efficacy, which is considered to be more or less similar for all antipsychotics.[32] With this view in mind, Hamann et al. stated that the choice of an antipsychotic should be made jointly by the patient and the clinician based on an informed discussion of the benefits and side effect profile of drugs.[33] Nevertheless, while counseling patients of schizophrenia, physicians must convey the possible medication side effects appropriately, without causing undue fear.[34] This must be done by explaining to the patients that side effects do not always occur but may occur, and that even if they do occur, there are options to treat them.

Overall mean awareness score in patients and caregivers was 12.57 ± 1.81 and 12.84 ± 1.91, respectively. The percentage of overall drug treatment awareness in patients and caregivers was around 73% and 75%, respectively. A study to assess treatment awareness in patients with schizophrenia by Huang et al. in China found that 67% of the patients had knowledge about treatment, which was lower than that in our study. Nevertheless, in the study by Huang et al., inpatients were included. Hence, there is a high chance that these patients were not stabilized enough for self-administration of the drug, and there is also a high probability that these inpatients lacked insight.[27]

No statistically significant correlation was found between patient drug awareness scores and sociodemographic factors. However, this must be viewed in light of the limitations the modified Kuppuswamy scale offers. This scale considers the occupation and education status of the head of the family and not necessarily of the patient. It is difficult to assess the validity of the responses regarding income since there could be hesitancy to reveal the true value.[35] Correlation analysis between the caregiver age and drug awareness scores showed no statistically significant correlation. Correlation analysis between socioeconomic status and caregiver awareness scores revealed a statistically

significant correlation (rho = 0.23, P = 0.004). Analysis also showed a weak positive correlation between the caregiver's education status and drug awareness scores (rho = 0.21, P = 0.009). Yet, it must be borne in mind that these correlations were weak and that their clinical significance cannot be ascertained. No correlation was found between drug treatment awareness and insight scores (rho = 0.02, P = 0.84). However, the implication of this will be limited since only patients with good insight were included in this study (score ≥ 9). Sood et al. showed a positive correlation between patient's insight and attitude toward antipsychotic medications.[36] However, unlike the current study, Sood et al. looked into attitude and not awareness about medications.

In our study, the overall scores and domain-wise awareness scores were comparable in patients and caregivers (P = 0.22). This could be because the same physician counseled the patients and caregivers both. Even if the caregivers did not accompany the patients during some of the visits, there were separate counseling sessions in our setting that the caregivers could optionally choose to attend. Moreover, patients and caregivers generally belong to the same cultural environment. To add to this, patients who were given the questionnaire were the ones who had good insight and hence could interpret the questions adequately, just like the caregivers.

Limitations

The study did have certain limitations. Since there is no previous literature on drug awareness in patients with schizophrenia and considering the ethical appropriateness of the current study, patients with poor insight were excluded and only patients with good insight were evaluated for drug awareness. Since there were no previous studies pertaining to drug awareness in patients with schizophrenia, to the best of the authors' knowledge, no formal sample size calculation was done and the sample size was decided based on duration. Symptomatology data of the patients was not captured. Recall bias and respondent's subconscious reactions are two bias elements that could have influenced this study. However, the effect of these bias elements, if any, can be considered

minimal.[37] In this study, drug treatment awareness was studied, but awareness into other modalities of treatment was not looked into. While designing the DTAQ questionnaire, the authors did not conduct a needs assessment, and the questionnaire was based on World Health Organization's "Guide to Good Prescribing" manual. DTAQ could have a limited clinical relevance because psychometric testing validation was not performed. Patients who have schizophrenia may have cognitive impairment associated with the disease; No objective measure for cognition was used in the study. The exclusion of caregivers was based only on clinical history.

Conclusion

Both patients and caregivers had maximum awareness with respect to past medication records and re-visit/re-consult instructions. Patients and caregivers had minimum awareness in relation to side effects of medications and details of the prescribed medications. No clinically significant correlation was seen between the sociodemographic factors and the patient and caregiver awareness scores. The level of drug treatment awareness in patients and caregivers was comparable. To facilitate better awareness, we recommend that additional staff in the form of counselors be appointed to reiterate prescription- and drug treatment-related information to patients. Additionally, visual aids in the form of posters and charts can be utilized to reinforce the importance of regular medication intake.

Supplementary Material

Supplementary files for this article are available online.

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