Disability in clinically stable patients of schizophrenia

Mahapraakash Sharma, Anil Nischal1, Anuradha Nischal2, Manu Agarwal1, Bandna Gupta1, Sujit Kumar Kar1, Erika Pahuja3

Pratapgarh District Hospital, Pratapgarh, Departments of 1Psychiatry and 2Pharmacology, King George’s Medical University, Lucknow, Uttar Pradesh, 3Department of Psychiatry, National Institute of Mental Health and Neuro Sciences, Bengaluru, Karnataka, India

Purpose: Disability associated with schizophrenia affects every aspect of life. In India, persons with schizophrenia are eligible for disability benefits. Only a handful of patients are aware and able to avail the benefits. We intended to assess disability in clinically stable patients of schizophrenia as even though they are stable but are disabled and may benefit from disability benefits and rehabilitation. Methods: Sixty-two clinically stable patients of schizophrenia were assessed on the Mini-International Neuropsychiatric Interview, Positive and Negative Syndrome Scale (PANSS), and Schizophrenia Cognition Rating Scale. Disability was assessed on the Indian Disability Evaluation and Assessment Scale (IDEAS). Results: Nearly one-fourth of the “stable patients” had moderate-to-severe disability (22.6% – moderate and 1.6% – severe), i.e., certifiable disability as per IDEAS. Disability had a significant correlation with all three domains of PANSS as well as total PANSS score. The correlation was stronger with negative than with positive symptom scores. Disability also strongly correlated with cognitive impairment. “Work,” “communication and understanding,” and “interpersonal relationship” domains of IDEAS had a strong correlation with cognitive impairment. Conclusion: Nearly 25% of the stable patients had certifiable disability. The “work” domain of IDEAS was most affected. It demonstrates that the rehabilitation of this population may contribute to reducing disability.

Keywords: Cognition, cognitive dysfunction, disability evaluation, disabled persons, psychiatric rehabilitation, schizophrenia

Schizophrenia is arguably the most puzzling of all psychiatric syndromes, one of the most debilitating, with devastating consequences for the affected individual, his or her family, and the society. The disorder frequently, though not always, takes on a persistent course of recurrent acute symptom exacerbation and persistent functional and social disability. Antipsychotics are particularly effective against positive symptoms, but these symptoms are poorly correlated with functional outcome. Thus, despite adequate pharmacological treatment and dramatic improvements in positive symptomatology, disability is an important outcome that is meaningful for the patients and their family members.[2,3]

Disability is “any restriction or lack of ability to perform an activity in the manner or within the range considered...”
normal for a human being, mostly resulting from impairment."[4] Disability in schizophrenia is contributed by its positive and negative symptoms and cognitive deficits. Cognitive impairment is one of the core aspects of schizophrenia, a critical determinant of functional and vocational outcomes.[5] In schizophrenia, disability can affect functioning in various areas including self-care, occupational performance, functioning in relation to family and household members, and functioning in a broader social context.[6] Worldwide, it is one of the leading causes of years lost due to disability in males and females.[7]

The Government of India has made provisions for benefit to persons having mental disability under the Persons with Disabilities (Equal Opportunities, Protection of Rights and Full Participation) Act, 1995[8] and Rights of Persons with Disabilities (RPWD) Act, 2016.[9] These benefits are made available on certification of at least a moderate level of persisting disability. However, the real scenario remains that only a small fraction of schizophrenia patients, who have certifiable disability, are able to access these benefits. Stigma, poor knowledge about certification benefits and Indian Disability Evaluation and Assessment Scale (IDEAS), fear of misuse of certificates, discomfort to approach government hospitals, time constraints, rigid negative thinking about legal issues, and denial of disability are some of the highlighted causes of not procuring disability certification and benefits. Illiteracy plays a major role as a barrier to these services.[10]

Even though it is a well-known fact that antipsychotics are effective in reducing disability across all domains and in total IDEAS scores, different levels of exposure to antipsychotic treatment were associated with different levels of disability.[11] Still, even though antipsychotic drugs are in use for more than five decades, disability associated with schizophrenia has remained underaddressed and is the leading cause of disability due to mental illness. Studies have been done to assess the disability in patients of schizophrenia receiving regular treatment for a defined period of time with varying results.[12] The impetus for the study stemmed from curiosity to assess certifiable disability in those “clinically stable” patients of schizophrenia who were on adequate treatment. Hence, in the current study, we aimed to assess disability in “stable patients” of schizophrenia and to study the association of sociodemographic and clinical variables of these patients with disability.”

METHODS

The sample was drawn from the patient population attending the psychiatry outpatient department (OPD) of a medical university in North India. A total of 62 patients meeting selection criteria for the study were recruited. The diagnosis of schizophrenia was made as per ICD-10 DCR.[13]

“Stable patient” for the purpose of the study was operationally defined as “A patient who was on adequate treatment for at least last 6 months, did not require any increase in dose of antipsychotic medication over last 3 months and was adjudged clinically stable by the treating clinician.”

Treatment for at least 6 months was chosen as psychiatric illnesses are often episodic, fluctuating, dynamic, and debilitating. However, for the purpose of certification, mental disability should be assessed when the psychiatrist is satisfied that further psychiatric treatment and rehabilitation is not likely to reduce the extent of the impairment. Various time durations have been considered as an adequate treatment,[13,14] but we took a period of 6 months for our cases.[14] Three months of no increase in dose of medication was chosen because we wanted to include only those patients who had achieved the best possible level of functioning and in whom further change in medication is not expected to improve it further. “Clinically stable as adjudged by the treating clinician” phrase was used so that it remains a naturalistic design in respect of adjudging the adequacy of treatment and stability of functional outcome.

Patients fulfilling the following selection criteria were recruited for the study. Inclusion criteria for patients were as follows: age 18–60 years, duration of illness 2 years or more (chronic cases only), satisfying operational definition for “stable patient,” and those willing to give written informed consent. Patients with comorbid psychiatric disorder (except tobacco use disorder), major medical or surgical disorder/disability, and mental subnormality before the onset of illness (judged clinically) were excluded.

The study was approved by the Institutional Ethics Committee of the Medical University. Patients and caregivers who were willing to give written informed consent were assessed on the same day, or an appointment for assessment was given on a mutually convenient later date. Information was collected on semi-structured pro forma for patients and caregivers. Patients were assessed clinically and on the Mini-International Neuropsychiatric Interview 6.0.[15] to rule out any other comorbid psychiatric disorders. The Positive and Negative Syndrome Scale (PANSS)[16] for psychopathology and its severity and the Schizophrenia Cognition Rating Scale (SCoRS)[17] to rate the degree of cognitive impairment were applied. Disability was assessed on IDEAS.[17]
A sociodemographic and clinical profile of patients with varying levels of disability was studied. The correlation between type of schizophrenia, duration of illness, SCoRS scores with domain scores, and global and total scores of IDEAS was studied.

Data were analyzed using SPSS software. Descriptive analysis including frequency distribution was carried out for sociodemographic variables. Chi-square test was used to analyze categorical variable, and continuous variables were analyzed using parametric tests. The correlation between different illness variables and IDEAS scores was carried out using Pearson's correlation coefficient. The value of statistical significance was taken as $P < 0.05$ for all these tests.

**RESULTS**

Totally sixty-two “stable patients” formed the sample for the study. The mean age of the patients was 33.79 ± 8.40 years. Most of the patients included in the study were 31–45 years of age (48.4%), male (66.10%), married (50%), belong to urban setting (53.2%), educated up to intermediate or more (75.8%), from Hindu religion (88.7%), from joint family (58.6%), and having family income <5000 (41.9%). Sociodemographic variables revealed no significant correlation with disability.

The mean (standard deviation [SD]) of the duration of illness (in years) was 7.53 ± 4.82, and the mean duration (SD) of clinical stability (in months) was 11.72 ± 7.81. Most of the patients included in the study had paranoid schizophrenia (74.2%), duration of illness of 2–5 years (41.9%), and duration of clinical stability of 6–12 months (74.2%). The mean (SD) scores across different domains of PANSS revealed a total positive symptom score of 7.58 (1.24), total negative symptom score of 11.17 (5.12), general psychopathology score of 22.14 (5.73), and total PANSS score of 40.32 (11.11).

The mean of IDEAS global score (IDEAS-GS) was 4.40 ± 2.81. In the sample, 75.80% of the patients had mild disability, 22.60% had moderate disability, and the rest 1.6% had severe disability as per IDEAS [Table 1]. About 11% of the patients of paranoid schizophrenia had moderate disability and the rest 89% had mild disability, whereas 6.25% of the patients of undifferentiated schizophrenia had severe disability, 56.25% had moderate disability, and the rest (37.5%) had mild disability [Table 1]. Patients of undifferentiated schizophrenia had revealed significantly higher disability in work, communication and understanding, interpersonal activities, and total and global scores of IDEAS, as compared to patients of paranoid subtype. Self-care domain could not be compared as the mean score and SD was zero in paranoid schizophrenia [Table 2]. It was surprising that none of the patients or their family members knew about certification and its benefits.

A significant correlation between duration of illness and IDEAS-GS ($P < 0.001$) was observed but not with IDEAS total score (IDEAS-TS) ($P = 0.18$). All domains of IDEAS had a significant correlation with scores of PANSS (total positive, total negative, and total general psychopathology scores), except the correlation between self-care domain of IDEAS and total positive score of PANSS which was insignificant [Table 3].

Cognition assessment tool “SCoRS” items revealed maximum impairment in “keeping words from being

### Table 1: Comparison of degree of disability according to subtype of schizophrenia

| Degree of disability | Paranoid schizophrenia (n=46) | Undifferentiated schizophrenia (n=16) | Test of significance ($X^2$, $P$) | Total (%) |
|----------------------|-------------------------------|--------------------------------------|-----------------------------------|-----------|
| Mild                 | 41                            | 6                                    | 37.87, <0.001                     | 47 (75.80) |
| Moderate             | 5                             | 9                                    | 14 (22.60)                        |           |
| Severe               | 0                             | 1                                    | 1 (1.60)                          |           |
| Profound             | -                             | -                                    | -                                 |           |

**Table 2: Comparison of domains of disability according to subtype**

| Domain of IDEAS     | Mean±SD | Test of significance (df=60) ($P$, $t$) |
|---------------------|---------|----------------------------------------|
|                     | Paranoid subtype (n=46) | Undifferentiated subtype (n=16) |
| Self-care           | 0.00±0.00 | 0.18±0.40 | Could not be assessed |
| Interpersonal activities | 0.37±0.44 | 0.87±0.80 | <0.001, 4.36 |
| Communication and understanding | 0.37±0.44 | 1.06±0.77 | <0.001, 7.90 |
| Work                | 0.32±0.79 | 2.12±1.58 | <0.001, 8.02 |
| Total score         | 0.67±1.56 | 4.25±3.47 | <0.001, 7.98 |
| Duration of illness score | 2.69±0.89 | 3.00±1.03 | 0.075, 1.79 |
| Global score        | 3.45±1.85 | 7.37±3.48 | <0.001, 7.83 |

IDEAS – Indian Disability Evaluation and Assessment Scale; SD – Standard deviation; DF – Degrees of freedom
jumbled up,” “following conversations in a group,” “concentrate enough to read,” and “doing things quickly.”

A statistically significant correlation was present between score on the Schizophrenia Cognitive Rating Scale (SCoRS) and score on all domains of IDEAS, total score, global score, and duration of illness. A strong correlation was present with global score, total score, work, communication and understanding, and interpersonal relationship. The duration of illness and self-care had revealed a fair correlation [Table 3].

**DISCUSSION**

Hardly, any studies have attempted to assess certifiable disability (level of disability which allows one to receive disability benefits according to the law of the land) in clinically stable patients of schizophrenia. IDEAS is a tool used in India for assessing and certifying disability in mental illnesses. Patients with more than 40% disability are certified and have access to certain benefits by the Government of India, which vary from state to state in India. The Gazette of India, which approves the use of IDEAS as a tool for certification in psychiatric disorders, does not mention clearly about the status of treatment at the time of evaluation. However, the state government order, in the state where this study was conducted, uses the term “Saghan chikitsa ke upraant bhi” (even after intensive treatment), meaning that those patients of schizophrenia who even after intensive treatment do not recover fully should be assessed on IDEAS and given certification.

In our study, the mean of global score of disability on IDEAS was 4.40 ± 2.81, meaning mild disability. As we considered only clinically stable patients who were receiving regular and adequate treatment, we obtained a lower score (mean score <1) in all the domains on IDEAS. “Work” domain of IDEAS was most affected, followed by “communication and understanding” and “interpersonal relationship,” whereas “self-care” domain was least affected. In our study, 75.8% of the patients had mild disability, 22.60% had moderate disability, and 1.6% had severe disability [Table 1]. Nearly one-fourth of the “stable patients” had moderate-to-severe disability, i.e., eligible for disability benefits [Table 1]. Similar results were seen by Thirthalli et al., wherein clinically stable patients who were on treatment for 2 years had mild disability. Balhara et al. reported a moderate level of disability in most of the disability certificate-seeking patients with schizophrenia over a 5-year period. This difference may be because it was a retrograde study, and they did not consider the clinical status of patients. Furthermore, their sample was derived from disability certificate-seeking population and hence differed from ours which was derived from general OPD patients. Makhal et al. reported a severe level of disability in most of the patients, but the PANSS score was high in this study because they considered untreated patients which is different from our study and is understandable. In our study, most of the patients evaluated had mild disability. The possible reason for this finding is sample selection criteria, which were designed to select clinically stable patients only. These patients were adherent to treatment. Their symptoms were stable and not impairing enough to need dose escalation. In such clinically stable patients, lesser disability is expected, and the findings of our study go parallel to this understanding. In our patient sample, most of the patients had paranoid subtype of schizophrenia, which is less debilitating and disabling than any other subtype of schizophrenia.

No statistically significant correlation was observed between global disability on IDEAS and age of patients which is in accordance with previous studies. No statistically significant difference was observed between global disability and gender. Similar results were obtained by Balhara et al., whereas a study by Thara et al. revealed males to be more disabled. In our study, no statistically significant difference was observed between global disability of married and unmarried groups which is in contradiction with the earlier studies which have revealed that unmarried
persons have higher disability than married.\textsuperscript{[22]} Even though statistical significance was not achieved, trends in our study are similar to those of earlier studies. The possible reasons of this finding can be a smaller sample size.

In our study, no significant difference was found in global disability among the urban and the rural groups, between joint and nuclear family groups, and different socioeconomic groups. Other studies revealed a higher prevalence of disability in rural areas\textsuperscript{[23]} and better functioning in extended families\textsuperscript{[24-26]} and middle and lower socioeconomic groups.\textsuperscript{[27,28]} This difference might be due to the type of sample, as for our study, we chose stable patients, 73% of whom were employed whereas the other studies had symptomatic patients who were unemployed.

The difference in global disability among different educational groups was also not significant. Previous studies have revealed that lack of education among the disabled is an important barrier for effective delivery of services.\textsuperscript{[10]} However, in our study, we found that in stable patients of schizophrenia, education has no bearing on the disability.

It is interesting to note that none of the sociodemographic factors had an association with disability. This may be viewed in the light that the concept of disability refers to shortfall in expected level of functioning for a given individual. The determination of expected level of functioning for an individual takes into consideration his sociodemographic profile including variables such as age, gender, education, and domicile. Any decline in ability will be reflected in the context of premorbid/accepted level and is not likely to be influenced by sociodemographic profile.

Patients of undifferentiated schizophrenia had significantly higher disability than paranoid subtype [Table 2]. Similar findings were reported by Alptekin et al. in their study.\textsuperscript{[20]} The duration of illness had a significant correlation with IDEAS-GS ($P < 0.001$) but no significant correlation with total score [Table 3]. The reason for this is that the IDEAS incorporates the duration of illness in calculating IDEAS-GS.

Disability (IDEAS-GS and IDEAS-TS) had a significant correlation with psychopathology in all three domains of PANSS as well as the total PANSS score [Table 3]. Similar results were observed in other studies. Chaudhary et al. also reported a strong correlation between disability (using the London Handicap Scale) with negative symptoms and general psychopathology score.\textsuperscript{[29]} On the individual domains of the IDEAS scale, correlation tests with the components of the PANSS scale showed that while both negative symptoms and general psychopathology seem to affect all domains, positive symptoms do not significantly affect self-care domain [Table 3]. Similar results were reported by Chaudhary et al.\textsuperscript{[29]}

Maximum impairment in cognition domains was observed in the items of “difficulty in keeping words jumbled up,” “following conversation in a group,” “doing things quickly,” and “concentrate enough to read.” Similar results were obtained in other studies.\textsuperscript{[10,31]} We had calculated total adjusted score on SCoRS in our study, because few items (follow TV show, concentrating well enough to read, and learning the use of new gadgets and equipment) were not applicable in few of our patients (due to poverty and poor education). In our study, we obtained a lower score on SCoRS because most of the samples were of paranoid schizophrenia, who have relatively lesser cognitive impairments and also because of clinical stability. In our study, a strong positive correlation was seen between SCoRS score and “interpersonal activities,” “communication and understanding,” and “work” domain of IDEAS, thereby suggesting a significant impact of cognitive decline on those areas [Table 3]. In contrast, some studies revealed that cognitive deficits were not associated with functional disability in patients of schizophrenia in remission.\textsuperscript{[32,33]}

With the above findings, it is clear that even clinically stable patients of schizophrenia suffer from deficits causing mild-to-profound disability which contributes to a caregiver’s burden. Even when a clinician assesses them to be stable, they harbor a significant social and vocational disability which remains unaddressed most of the time. It is the need of the hour to start considering this problem as relevant and start looking solutions for the same. Attempts should be made to increase awareness, by the government as well as by clinicians, about disability certification and benefits for patients having benchmark disability. Furthermore, there is a dearth of rehabilitation services in developing countries such as India which may contribute significantly to addressing disability in these stable patients.

The way forward might include simple inclusions in the composite treatment plans of schizophrenia, such as while psycho-educating, when the patient and family members are informed about the cognitive and functional deficits that may remain even after treatment, and at the same time, they should be informed about the certification and disability benefits. Obtaining a disability certificate for schizophrenia is simple and requires only a form from the Chief Medical Officer on which the psychiatrist mentions the disability percentage as recorded on IDEAS. IDEAS is a very simple tool and can be applied on OPD basis, and there is no need for admission. The inclusion of this simple fact can help at least 25% of the patients with schizophrenia and their families. Over the last few years, there have been efforts from the Government of India to
improve rehabilitation, considering rights of persons with mental illness in the Mental Healthcare Act, 2017[34] and RPWD Act, 2016,[39] provision of setting up an institution for mental health rehabilitation, and setting up of the Department of Disability Affairs. Hence, it appears that India has started acting to address this felt need, but there is a long way to go and fruits are yet to be seen.[39]

There are certain limitations in this study which should necessitate the exercise of caution in the generalization of these findings. Our definition of “stable patient” has a subjective component which might vary from clinician to clinician. We had to consider adjusted scores in SCoRS because some items of scale were not applicable in few subjects. Psychosocial interventions, which may have a bearing on disability, have not been considered. Hospital-based sample was taken, and hence, generalizability to community sample is questionable.

CONCLUSION

In our study on the assessment of certifiable disability in clinically stable patients of schizophrenia, we found that nearly one-fourth of the clinically stable patients had moderate-to-severe disability (certifiable disability) and the rest had mild disability (≤40%). “Work” domain of IDEAS was most affected, followed by “communication and understanding” and “interpersonal relationship,” whereas “self-care” domain was least affected. Disability was not correlated with sociodemographic variables. Disability in patients of undifferentiated schizophrenia was higher than those of paranoid schizophrenia. About two-third of the patients of undifferentiated schizophrenia had moderate-to-severe (certifiable) disability in contrast to about one-tenth of paranoid schizophrenia. Disability by virtue of having undifferentiated subtype was significantly higher in “work,” “communication and understanding,” “interpersonal relationship domains,” and total and global scores of IDEAS. Disability on IDEAS was strongly correlated with psychopathology in all three domains of PANSS as well as cognitive impairment.

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Conflicts of interest
There are no conflicts of interest.

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