Severity of Disability in Persons with Schizophrenia and its Sociodemographic and Illness Correlates

Abstract

Background: Disability is a major public health issue across a person’s lifespan. Schizophrenia is a chronic mental disorder that causes considerable disability in a person’s functioning. It has major setback on the person’s life which drastically affects various areas of life. The current study aimed to investigate the severity of disability in persons with schizophrenia and to see its relationship with sociodemographic and clinical characteristics. Materials and Methods: Sixty persons who met the criteria for schizophrenia as per the International Classification of Diseases-10 were recruited from Psychiatry Outpatient Department, National Institute of Mental Health and Neuro-Sciences, Bengaluru, Karnataka, India. The sample was assessed using the sociodemographic data sheet, Positive and Negative Syndrome Scale, and World Health Organization-Disability Assessment Schedule-II. Results: The overall disability level seemed to be moderate, but severe disability was noted in the areas of social participation and interpersonal relationship. Conclusion: Primarily, the study would help to bring about better comprehensive treatment, including rehabilitative plans to reduce the burden of disability while improving the functioning level of the persons with schizophrenia.

Keywords: Disability, correlates, schizophrenia

Introduction

Today, disability is recognized as a critical but neglected public-health concern.[1-4] It is multidimensional and experienced at various points on a continuum, from minor-to-major difficulties on a person’s life.[2] Moreover, it restricts a person’s ability to execute an activity in the manner or within the range that considered to be normal.[5] Disability is an umbrella term which includes impairments, activity limitations, and participation restrictions.[2,6,7] A study from India showed that mental disability to be the most common type of disability accounting for 36.7% of total disability.[8]

People with severe mental disorders experience inexplicably higher rates of disability and mortality.[9] The study of disability associated with mental disorder, therefore, becomes a matter of prime significance. Studies from all over the world recognized that schizophrenia is a severe mental disorder, that disables and incapacitates the persons with the illness and usually begins in early adulthood.[10-16] It is characterized by a chronic and relapsing course with usually incomplete remissions.[17] It also affects all the major areas of life.[7,18]

Schizophrenia causes considerable disability in a person’s personal, marital social, occupational functioning, such as deficits in patient’s ability to care for themselves,[19,20] care for personal space and environment, interpersonal relationships, ability to show emotions and having meaningful conversations, obtaining or maintaining a job, and ability to manage the tasks of daily living.[21-25] Therefore, the purpose of the present study was to assess the disability in persons with schizophrenia and to identify its clinical correlation with sociodemographic factors, age of onset, duration of illness, and the different types of schizophrenia. Although Western studies have looked into these variables, there is a distinct scarcity of Indian studies in this field.[26] Reduction of disability is one of the main objectives of treatment. Therefore, this study will be a useful contribution in providing the need for a comprehensive treatment plan.
for persons with schizophrenia in view of disability reduction and better level of functioning.

**Materials and Methods**

The study was conducted at the National Institute of Mental Health and Neurosciences, Bengaluru, Karnataka, India, and it is a part of a study. A descriptive research design was adopted. Sixty persons suffering from schizophrenia who gave consent for the study after the intake screening were recruited for the study after the ethical clearance. The sample size was calculated from the estimation of mean at 5% significance level, and it was found to be 53. Both male and female persons above the age of 18 years, diagnosed as schizophrenia (as per the International Classification of Diseases-10 criteria), with more than 2 years of illness duration, and who were attending outpatient services for more than a year. Persons with all other comorbidities as well as neurological and physical disabilities, including persons with nicotine dependence were excluded. Consecutive sampling method was used. The following instrument was applied.

**Instruments used**

**Sociodemographic datasheet**

A semi-structured pro forma specifically developed for this study comprising sociodemographic variables, illness profile, and treatment details.

**Positive and Negative Syndrome Scale**

It assesses symptomatology by operationalizing positive, negative, and general symptoms of schizophrenia. It consists of 30 items, with 7 items assessing the positive and negative symptomatology and 16 items constituting a general psychopathology measure.

**World Health Organization-Disability Assessment Schedule-Version II 2000**

It is an instrument developed by the World Health Organization (WHO) in order to assess behavioral limitations and restrictions to participation experienced by an individual and it was administered through interview mode. The 12-item scale yields a single score, which indicates the overall percentage of disability experienced by the person.

**Statistical analysis**

IBM Statistical Package for the Social Sciences (version 22, IBM Corp, Armonk, NY) was used for statistical analyses. Quantitative variables were compared using Mann–Whitney U-test (as the data sets were not normally distributed) between the two groups. Qualitative variables were correlated using the Chi-square test and Spearman’s correlation test. For all the statistical tests, $P < 0.05$ was considered as statistically significant.

**Results**

Of 60 patients, 33 (55.00%) were male and mean age (standard deviation [SD]) of the group was 36.70 (11.92) years. About 37 (61.70%) participants were single and living with family of origin (which included never married, divorced, and widows/widowers) and 23 (38.30%) of them were married, living with the family of procreation, or family of origin. Majority of them only had primary ($n = 26.70$%) or secondary education ($n = 30.00$%). Thirty-eight (63.70%) of them were unemployed due to illness and majority lived in rural areas ($n = 32, 53.30$%). Paranoid schizophrenia ($n = 35, 58.30$%) was the common type and the group also included patients with undifferentiated type, catatonic type, and hebephrenic type. The mean age of onset of illness was 26.15 (9.33) years with an average duration of illness 10.72 (7.76) years [Table 1].

Based on the WHO-Disability Assessment Schedule-II scores, median value of 20, the group was divided into two categories as “participants with lower and higher disability”.[29] Table 2 shows the association of demographic characteristics with groups based on severity of disability. The occupation, diagnosis, and adherence categories were found to be significantly associated with disability. Unemployment percentage was significantly higher ($\chi^2 = 12.64, P < 0.002$) among more disabled group ($n = 25, 86.20$%) as compared to the group with lesser disability. Most patients in less disabled group have paranoid schizophrenia ($n = 26, 83.87$%), and among the severely disabled group, other types of schizophrenia ($n = 20, 68.00$%) were significantly higher ($\chi^2 = 17.21, P < 0.001$). Medication adherence was significantly higher ($\chi^2 = 10.99, P < 0.001$) among less disabled group ($n = 28 m 90.32$%) as compared to more disabled group ($n = 15, 51.90$%).

Table 3 reveals the group with more disability has significantly younger age of onset (mean = 23. 20, SD = 7.51; $U = 281.5; P < 0.013$). Significantly more number of exacerbations of symptoms (mean = 2.828 SD = 1.71) and treatment gaps (mean = 1.41, SD = 1.05) were observed in higher disability group ($U = 247; P < 0.002; U = 273; P < 0.006$). They also had significantly higher number of negative, positive, and general symptoms ($U = 104.5, P < 0.001; U = 244.5, P < 0.001$). The overall disability observed to be mild to moderate in the domain scores of the participants. The extreme and severe disability was more among the areas of social participation and interpersonal relationship, specifically, maintaining relationship, community activities, and dealing with unknown people [Figure 1]. The results [Table 4] show that there is a significant positive correlation ($r = 0.394$) between the duration of untreated psychosis and the domains of social participation (interpersonal relationship and involving in community activities). It is also noted


Table 1: Distribution of sociodemographic profile of participants (n=60)

| Variable                              | n (%) |
|---------------------------------------|-------|
| Gender                                |       |
| Male                                  | 33 (55.00) |
| Female                                | 27 (45.00) |
| Marital status                        |       |
| Single                                | 37 (61.70) |
| Married                               | 23 (38.30) |
| Education                             |       |
| Illiterate                            | 5 (8.30) |
| Primary                               | 16 (26.70) |
| Secondary                             | 18 (30.00) |
| Higher secondary                      | 5 (8.30) |
| Graduation                            | 10 (16.70) |
| Postgraduate and professionals        | 6 (10.00) |
| Employment status                     |       |
| Employed                              | 22 (36.60) |
| Unemployed                            | 38 (63.40) |
| Socioeconomic status                  |       |
| Higher                                | 6 (10.00) |
| Middle                                | 21 (35.00) |
| Lower                                 | 33 (55.00) |
| Residence                             |       |
| Urban                                 | 13 (21.70) |
| Semi-urban                            | 15 (25.00) |
| Rural                                 | 32 (53.30) |
| Number of siblings                    |       |
| <2                                    | 30 (50.00) |
| >2                                    | 30 (50.00) |
| Family size                           |       |
| <5                                    | 39 (65.00) |
| >5                                    | 21 (35.00) |
| Family type                           |       |
| Joint                                 | 2 (3.30) |
| Nuclear                               | 58 (96.70) |
| Caregivers                            |       |
| Parents (mother)                      | 34 (56.60) |
| Spouse                                | 17 (28.40) |
| Children                              | 5 (8.30) |
| Siblings                              | 4 (6.70) |
| Diagnosis                             |       |
| Paranoid schizophrenia               | 35 (58.30) |
| Undifferentiated schizophrenia        | 21 (35.00) |
| Catatonic schizophrenia              | 2 (3.30) |
| Simple schizophrenia                  | 1 (1.70) |
| Hebephrenic schizophrenia             | 1 (1.70) |

that there is a significant negative relationship ($r = -0.365$) between age of onset and social participation.

**Discussion**

The present study shows moderate level of disability with the mean duration of illness with 10.72 years (SD: 7.76 years) among the persons with schizophrenia. It is similar with few prospective studies which highlighted that most of the persons with schizophrenia had moderate level of disability, irrespective of the settings, had remained stable over a period of time with minimal fluctuations $^{[31,32]}$ and with the duration of illness of 2–5 years. $^{[33]}$ In this study, disability was assessed over the domains of mobility, self-care, understanding and communication, interpersonal, life activities, and participation, akin to other studies $^{[29,34]}$ The root challenges faced by the persons with schizophrenia are performing an activity in the manner that is considered to be normal to meet the expectations of others and to care for themselves $^{[3,14,35‑37]}$

In the current study, the extreme disability was noted in the areas of social participation and maintaining interpersonal relationship, compared to mobility and self-care where only mild disability was noted. This could be because they were compliant with treatment regiments, but still, they could not go for work and perform difficult tasks. Although defining and measuring social functioning in schizophrenia remains a complex and disputed area, its assessment is integral to the treatment of schizophrenia. $^{[38]}$ A study by Bottlender et al. notes deficits in psychosocial functioning as a core feature of schizophrenia. $^{[39]}$ Another previous study explains the reason for severe disability in the social functioning as due to inability in maintaining minimum level of social involvement, as the person with schizophrenia finds it extremely difficult to initiate and pursue any form of social activity. $^{[19]}$ This, in fact, supports our current study findings. Moreover, beyond psychopathology, improvement in personal and social functioning are considered as important outcome measures in the treatment for schizophrenia. $^{[40]}$ Bottlender et al. found that problems in social functioning in terms of social disability is very high in persons with schizophrenia than schizoaffective disorder and affective disorder. $^{[39]}$ Deficits in social functioning including interacting with others, maintaining social relationships, sustaining gainful employment, and functioning in the community are the areas where severe and persistent social disability is noted, and the same are the key characteristics of schizophrenia, as many of the persons with this illness
Table 2: Association of sociodemographic characteristics with World Health Organization-Disability Assessment Schedule categories

| Variable               | WHODAS categories |          |          | \(\chi^2\) | \(P\) |
|------------------------|-------------------|----------|----------|------------|-------|
|                        | Lower disability, \(n\) (%) | Higher disability, \(n\) (%) |          |           |       |
| Gender                 |                   |          |          |            |       |
| Male                   | 17 (54.83)        | 16 (55.17) | 0.001    | 0.979      |
| Female                 | 14 (45.16)        | 13 (44.82) |          |           |       |
| Total                  | 60 (100)          |          |          |            |       |
| Occupation             |                   |          |          |            |       |
| Unemployed             | 13 (41.93)        | 25 (86.20) | 12.64    | 0.001      |
| Employed               | 18 (58.06)        | 4 (13.79)  |          |           |       |
| Residence              |                   |          |          |            |       |
| Urban                  | 8 (25.80)         | 5 (17.24)  | 1.72     | 0.422      |
| Semi-urban             | 9 (29.03)         | 6 (20.68)  |          |           |       |
| Rural                  | 14 (45.16)        | 18 (62.06) |          |           |       |
| Number of siblings     |                   |          |          |            |       |
| <2                     | 15 (48.38)        | 15 (51.90) | 0.06     | 0.796      |
| >2                     | 16 (51.61)        | 14 (48.27) |          |           |       |
| Marital status         |                   |          |          |            |       |
| Single                 | 17 (54.83)        | 20 (68.96) | 1.26     | 0.261      |
| Married                | 14 (45.16)        | 9 (31.03)   |          |           |       |
| Diagnosis              |                   |          |          |            |       |
| Paranoid schizophrenia | 26 (83.87)        | 9 (31.03)   | 17.21    | 0.001      |
| Other types            | 5 (16.12)         | 20 (68.00) |          |           |       |
| Adherence              |                   |          |          |            |       |
| Yes                    | 28 (90.32)        | 15 (51.90) | 10.99    | 0.001      |
| No                     | 3 (9.67)          | 14 (48.27) |          |           |       |

WHODAS=World Health Organization-Disability Assessment Schedule

will continue to experience these even after the remission of their obvious symptoms.\[41-43\] The same corroborates with the important findings of the current study. To note, diverse psychosocial areas are affected in schizophrenia, and these areas are interconnected.\[13\]

Remarkably, disability is also influenced by some sociodemographic parameters such as age of onset, duration of illness, gender, marital status, employment status, severity and types of symptoms, duration of untreated psychosis, type and adequacy of treatment, and lack of social support.\[14,25,44-47\] The early age of onset and the presence of more negative symptoms predicted higher disability among the persons with schizophrenia as highlighted by some studies.\[48,49\] These studies also pointed out the tendency for early onset in males, with a peak incidence in their early 20s in contrast with late 20s and early 30s in females. Similarly, in this study also, the disability is significantly higher among the youngsters. Moreover, males had early onset of illness compared to females who had onset in their late 20s. However, this study does not find any significant relationship between duration of illness and disability. Persons with more negative symptoms envisaged statistically significant disability, similar to a previous study.\[40\]

The impact of the illness on the overall functioning of the individual could be the barrier to get married or the reason for divorce or separation as majority of them were single (61.7%) in the current study. The same was substantiated by another study.\[14\] As few previous studies\[50-52\] pointed out occupation, type of symptoms and treatment adherence were significantly associated with disability level which is comparable to the current study findings. Higher level of disability was significantly experienced by the unemployed persons which is parallel to the study by Jain et al.\[53\] The highest disability was in the area of occupational functioning and the impact of the disability was one of the main cause of unemployment and it prevented them from doing or continuing their jobs.\[14\] A longitudinal study\[54\] concluded that paranoid schizophrenia was with good outcome and better prognosis. In this study too, persons with paranoid schizophrenia type experienced significantly lesser disability and had better level of functioning. Moreover, disability was significantly lesser among the persons who were adherent with the treatment regimen and they had better outcome. In addition, this study also revealed significantly higher disability among the persons who had more duration of untreated psychosis. As noted by most of the studies,\[54\] the current study also finds that social disability is a significant phenomenon in schizophrenia. Stigma and discrimination increase the vulnerability to disability by magnifying the illness and depriving the adequate care and treatment.\[19,51\] This indicates the definite need for early identification, referral and suitable treatment ensuring a comprehensive treatment.
disability is found to be present, and the information regarding disability to be well disseminated far and wide for the early detection of disabilities and timely intervention to reduce it.

In general, disability is found to be present, and the need for individualizing the psychosocial interventions is mandatory. It should be integrated to the mainstream of mental health system to maximize the service delivery for a better outcome.

As deficits in social functioning are core feature of schizophrenia, the goal of treatment must be to improve psychosocial functioning through a comprehensive treatment care.

Psychosocial treatment should focus on the assessment of functionality and disability even from the beginning of treatment.

Strengthen the community for effective and efficient early identification and referral of cases.

Biopsychosocial treatment modality should be solicited ensuring treatment compliance and individualized care services utilizing the residual capacities to the fullest to bring them back as a productive member.

A comprehensive treatment should envisage (supported) education, (supported) employment, vocational training, and rehabilitation of the persons with disability including community reintegration which should be strengthened to maximize their independent living and functionality.

Table 3: Comparison of sociodemographic characteristics with World Health Organization-Disability Assessment Schedule categories

| Variables                  | WHODAS categories, mean±SD | U    | P  |
|----------------------------|-----------------------------|------|----|
|                            | Lower disability            | Higher disability |      |    |
| Age (years)                | 38.80±13.17                 | 34.44±10.17     | 368.5| 0.229|
| Age of onset (years)       | 28.90±10.11                 | 23.20±7.51      | 281.5| 0.013|
| Duration of illness (years)| 10.22±8.381                 | 11.24±7.15      | 372  | 0.250|
| Untreated psychosis (years)| 0.677±0.979                 | 1.414±1.05      | 273  | 0.006|
| Age of treatment (years)   | 30.00±10.21                 | 25.17±7.87      | 316.5| 0.049|
| Duration of treatment (years)| 9.065±8.052               | 8.931±6.87      | 419  | 0.651|
| Number of exacerbation     | 1.581±1.118                 | 2.828±1.71      | 247  | 0.002|
| Positive symptoms          | 1.129±0.957                 | 2.241±1.50      | 244.5| 0.001|
| Negative symptoms          | 1.839±1.827                 | 5.620±2.57      | 104.5| 0.001|
| General symptoms           | 1.354±1.379                 | 3.896±2.64      | 135  | 0.001|

* Mann-Whitney U-test for comparison between groups. SD=Standard deviation, WHODAS=World Health Organization-Disability Assessment Schedule

Table 4: Correlation of study groups - continuous variables - nonparametric test

| Variables                  | Involving in community activities | Emotionally affected | Dealing with people | Maintaining a friendship |
|----------------------------|-----------------------------------|----------------------|---------------------|--------------------------|
| Duration of illness        | 0.171                             | 0.172                | 0.057               | 0.148                    |
| Untreated psychosis        | 0.394**                           | 0.325*               | 0.292*              | 0.421**                  |
| Age of onset               | −0.365**                          | −0.358**             | −0.268*             | −0.341**                 |

Spearman’s correlation analysis, **Correlation is significant at the 0.01 level (two-tailed), *Correlation is significant at the 0.05 level (two-tailed)

Recommendations

- Multidisciplinary teamwork approach is the need of the hour to improve the mental health-care system of our county with a comprehensive treatment regimen.
- Information regarding disability to be well disseminated far and wide for the early detection of disabilities and timely intervention to reduce it.
- In general, disability is found to be present, and the need for individualizing the psychosocial interventions is mandatory. It should be integrated to the mainstream of mental health system to maximize the service delivery for a better outcome.
- As deficits in social functioning are core feature of schizophrenia, the goal of treatment must be to improve psychosocial functioning through a comprehensive treatment care.
- Psychosocial treatment should focus on the assessment of functionality and disability even from the beginning of treatment.
- Strengthen the community for effective and efficient early identification and referral of cases.
- Biopsychosocial treatment modality should be solicited ensuring treatment compliance and individualized care services utilizing the residual capacities to the fullest to bring them back as a productive member.
- A comprehensive treatment should envisage supported education, supported employment, vocational training, and rehabilitation of the persons with disability including community reintegration which should be strengthened to maximize their independent living and functionality.

Conclusion

Schizophrenia can be disabling, but it is not always so.[55] If given comprehensive effective treatment, including good access to proper medications and supportive counseling, affected people can live reasonably normal lives. Modifiable risk factors that might influence the disability in persons with schizophrenia, as revealed in the current study such as medication adherence, early treatment, and untreated illness period should be given significant consideration in the treatment regimen as well as in the public mental health education. Moreover, enhancing support system, normalizing the day-to-day activities through engaging in self-care activities, domestic activities, and vocational skills development aiming at maximizing their independent living, etc., should be taken into consideration. Lifelong disability at varying degrees can affect both patients and their families and younger the onset higher the disability. Nevertheless, people with milder forms of schizophrenia are frequently able to work and live independently, and it should be assured in the treatment. Better health policies should be framed to improve the quality of life of persons with schizophrenia.

Limitations

The current study is with limitations, and it should be considered while interpreting the results. This study had a small sample size, lack of longitudinal assessment and consecutive sampling due to the time constraints, as well as...
the selection criteria which could yield Type II errors. Only outpatients from the institute were taken up for the study, and it was a cross-sectional study. Further longitudinal study with larger sample size including other variables is needed to assess their effects on disability in persons with schizophrenia. Limitations regarding language constraints were also present.

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Conflicts of interest
There are no conflicts of interest.

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