

## Instrumental Activities of Daily Living Dysfunction among People with Schizophrenia

Reema Samuel, Elizabeth Thomas<sup>1</sup>, K. S. Jacob

### ABSTRACT


**Background:** Life skills are the basic skills that are needed to live independently and that support meaningful, productive roles. The negative symptoms and cognitive dysfunction seen in schizophrenia may lead to deterioration in the life skills of the patient. The assessment of current life skills of the patient and subsequent intervention becomes necessary for comprehensive rehabilitation of people with mental illness. This study attempted to assess the instrumental activities of daily living among people with schizophrenia in India. **Methods:** One hundred consecutive patients with schizophrenia, between 18 and 60 years, who presented to a tertiary psychiatric facility were assessed using (i) Lawton instrumental activities of daily living scale (LIADL), (ii) positive and negative symptom scale (PANSS), (iii) pro forma for sociodemographic and clinical characteristics. **Results:** The majority of the patients were male, young adults, married, with secondary school education, middle socioeconomic status, from nuclear families, unemployed and were diagnosed to have paranoid schizophrenia. The reported IADL dysfunction included difficulties in handling medications (86%), preparing food (85%), shopping (78%), handling finances (61%), doing laundry (52%), housekeeping (47%), using public transport (32%), and using telephones (5%). The dysfunction documented differs from that reported in the west. Total PANSS score ( $P = 0.015$ ) and its general psychopathology subscale ( $P = 0.005$ ) correlated inversely with the total LIADL score; PANSS scores and sociodemographic variables were associated with some subscales of LIADL. **Conclusions:** IADL dysfunction, common in people with schizophrenia, demands detailed assessment, and tailored training to ensure optimum functioning.

**Key words:** India, instrumental activities of daily living, life skills, mental illness, schizophrenia, socio occupational dysfunction

### INTRODUCTION

Despite 50 years of pharmacological and psychosocial intervention, schizophrenia remains one of the leading causes of disability in the world. The syndrome is associated with functional impairments in social,

occupational, and independent living activities.<sup>[1]</sup> It has been argued that one of the primary reasons for the historical lack of improvement in functional outcome is a general lack of success in treating the aspects of schizophrenia such as cognitive impairment

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and negative symptoms as these have the strongest associations with functional recovery.<sup>[2]</sup>

In India, self-care is a common unmet need for people with psychiatric disorders as the psychiatric care mostly involves addressing the acute symptoms with little emphasis on rehabilitation.<sup>[3]</sup> There is dearth of studies from India which have documented deficits in instrumental activities of daily living skills. This study attempted to examine the extent of dysfunction in these life skills in people with schizophrenia.

## METHODS

### Study setting

The study was done in a 122-bed tertiary referral center having both inpatient and outpatient facilities for adults and children with mental and behavioral disorders. The center cares for patients with a variety of mental illnesses including schizophrenia. Psychiatrists, psychiatric nurses, occupational therapists, clinical psychologists, and psychiatric social workers form the treatment team and employ a multidisciplinary approach to the care of patients with mental illness. Pharmacological treatments, electroconvulsive therapy, and different psychological therapies are used in an eclectic approach. Patients who require comprehensive rehabilitation are admitted for an average of 4–6 weeks. They attend the occupational therapy unit where psychosocial rehabilitation is provided through one to one as well as group-based interventions.

### Study sample

100 consecutive persons diagnosed to have schizophrenia by the International Classification of Disease 10 criteria,<sup>[4]</sup> aged from 18 to 60, attending the occupational therapy unit of the department were recruited for the study after obtaining written informed consent. Intellectual disability and presence of comorbid psychiatric or physical conditions were exclusion criteria.

The following instruments were used to evaluate individuals

1. Lawton instrumental activities of daily living scale (LIADL): The LIADL Scale consists of eight components, which measures an individual's competence in functional instrumental activities of daily living. The components include ability to use a telephone, ability to perform simple shopping tasks, ability to prepare food, keep the house tidy, do their own laundry independently, level of assistance needed for traveling to different places and the kind of transportation required (public bus/auto/private vehicle, etc.), responsibility for taking their medications, and the ability to handle

finances. The scale consists of eight questions, one from each category described above. Each component is scored differently based on the level of independence, where the assistance required is graded from maximal to minimal. A score of one is given for each component, they are able to attempt. A score of zero is given for the components, they are unable to attempt or where maximal assistance is required with a summary score from zero (low function) to eight (high function). The information can be collected from the patient or a knowledgeable caregiver. The interrater reliability and concurrent validity of the scale have been found adequate, and the scale has been used in various studies including one from India<sup>[5-7]</sup>

2. Positive and negative symptom scale (PANSS): PANSS is a standard instrument to assess symptoms in psychosis. It constitutes three scales measuring positive symptoms, negative syndromes, and general psychopathology. The sum of the scales can also be added up to get a total score. The scoring is done from 1 (absent pathology) to 7 (extreme pathology) with the positive and negative subscales having seven items each and general psychopathology subscale having sixteen items.<sup>[8]</sup> This scale has been used in various previous studies conducted among patients with schizophrenia in India<sup>[9-11]</sup>
3. Pro forma for sociodemographic and clinical variables: the demographic details collected included the age, sex, socio-occupational status, educational qualification, marital status, type of family, and employment status. The clinical variables regarding subtype of schizophrenia, and duration of illness were also collected.

### Statistical analyses

The mean and standard deviation were used to describe continuous variables while the frequency and percentages were obtained for categorical variables. The statistical significance of the correlation between two continuous variables was evaluated computing the Pearson's correlation coefficient. The association between categorical variables was computed using Chi-square test. Multivariate analysis was done using linear regression.

### Ethical approval

The study was approved by the Institutional Review Board and Ethics Committee (IRB Min. No. 9727).

## RESULTS

### Demographic characteristics

The majority of the patients had been diagnosed with paranoid schizophrenia, were male, young adults, married, with secondary school education, middle

socioeconomic status, from nuclear families and were unemployed at the time of study [Table 1].

**Level of psychopathology and disability**

The mean total PANSS score in the sample correspond to between “moderately ill” to “markedly ill” when compared with the clinical global impressions scale<sup>[12]</sup> [Table 1]. The mean total score on the LIADL was relatively low with only a negligible percentage of the study population being completely independent in IADL.

**Extent of dysfunction in instrumental activities of daily living**

Among the components of the LIADL, difficulty in handling medications, food preparation and shopping were experienced by more than three-fourths of the study population. More than half the population had difficulty in handling finances and doing laundry. Difficulty in housekeeping and using transportation was found in more than one-fourth of the population and only a small percentage had difficulty using telephone [Table 1].

**Correlation between instrumental activities of daily living dysfunction and psychopathology**

There was statistically significant inverse correlation between total LIADL score and total PANSS score as well as the general psychopathology subscale of the PANSS. The correlation between total LIADL scale and the positive as well as negative subscales of the PANSS did not show statistical significance. The LIADL component of “using telephone” was significantly associated with the PANSS positive subscale and the component of “Shopping” was significantly associated with the total score as well as the general psychopathology subscale of PANSS. There were no other significant associations found between the components of the LIADL and the various PANSS subscale scores [Table 2].

**Correlation between instrumental activities of daily living dysfunction and demographic characteristics**

The total as well as few sub domains of the LIADL showed significant positive association with various demographic variables. Demographic variables of gender and level of education were significantly associated with total LIADL score. The LIADL component of “using telephone” was significantly associated with the level of education. The LIADL component of “food preparation” was significantly associated with age, duration, and gender. The LIADL component of “house-keeping” was significantly associated with gender and marital status. The LIADL component of “doing laundry” was significantly associated with gender, socio economic status, and employment status. The LIADL component of “using transportation” was

**Table 1: Characteristics of the study population (n=100)**

Characteristic	Mean (SD)	n (%)
Age (years)	30.83 (9.69)	
Duration of illness (years)	8.99 (6.89)	
Subtype of schizophrenia		
Paranoid		82 (82)
Sex		
Male		68 (68)
Education		
Secondary school level		39 (39)
Marital status		
Married		52 (52)
Employment		
Currently unemployed		49 (49)
Socioeconomic status		
Middle		46 (46)
Living situation		
Nuclear family		77 (77)
LIADL mean total score (8)	3.52 (1.62)	
LIADL minimum score (1)		8 (8)
LIADL maximum score (8)		2 (2)
PANSS total score (210)	82.45 (26.81)	
PANSS positive subscale (49)	19.79 (7.88)	
PANSS negative subscale (49)	24.44 (8.30)	
PANSS general psychopathology (112)	38.22 (14.59)	
LIADL A-difficulty in using telephone		5 (5)
LIADL B-difficulty in shopping		78 (78)
LIADL C-difficulty in food preparation		85 (85)
LIADL D-difficulty in housekeeping		47 (47)
LIADL E-difficulty in laundry		52 (52)
LIADL F-difficulty in mode of transportation		32 (32)
LIADL G-difficulty in responsibility for medications		86 (86)
LIADL H-difficulty in handling finances		61 (61)

PANSS – Positive and negative symptom scale; LIADL – Lawton instrumental activities of daily living scale; SD – Standard deviation

**Table 2: Correlation of total Lawton instrumental activities of daily living scale scores with the positive and negative symptom scale scores and demographic characteristics (n=100)**

Domain	Bivariate statistics PCC (P)	Multivariate statistics (adjusted for age and gender)		
		Beta	t	P
PANSS total	-0.243 (0.015)	-0.228	-2.469	0.015
PANSS positive subscale	-0.189 (0.059)	-0.182	-1.939	0.055
PANSS negative subscale	-0.116 (0.250)	-0.156	-1.646	0.103
PANSS general subscale	-0.277 (0.005)*	-0.236	-2.554	0.012
Education level	2.355 (0.046)	0.147	1.546	0.125
Gender	9.198 (0.003)†	0.375	3.859	0.001
Age	0.081 (0.424)	0.109	1.122	0.265

\*Correlation is significant at the 0.01 level (two-tailed); †F (P).

PANSS – Positive and negative symptom scale; LIADL – Lawton instrumental activities of daily living scale; PCC – Pearson’s Correlation Coefficient.

significantly associated with the level of education. The components of “shopping,” “taking medications” and “handling finances” failed to reveal any significant associations with the demographic data [Table 2].

## DISCUSSION

### Prevalence of instrumental activities of daily living dysfunction among people with schizophrenia

The aim of this study was to assess the level of instrumental activities of daily living dysfunction in people with schizophrenia. It was found that only 2% in the sample were completely independent in their instrumental activities of daily living. More than half of the sample had difficulty in activities of doing laundry, handling finances, shopping, food preparation, and handling medications. The dysfunction in instrumental activities of daily living among people with schizophrenia has been documented in other populations.<sup>[13,14]</sup> A study done among people with schizophrenia in the Indian population has revealed that 88.1% of the 101 patients completely lacked the ability to live independently.<sup>[15]</sup> However, the authors were unable to find studies in indexed, peer-reviewed journals which documented the extent of specifically instrumental activities of daily living dysfunction among the Indian population.

### Need for more focus on instrumental activities of daily living skills

There are many studies done in patients with schizophrenia which have showed impaired life skills as leading to significant disability.<sup>[16-18]</sup> A study from India concluded that independent functioning at baseline was a predictor of better recovery when followed up after 10 years.<sup>[15]</sup> There are various studies which support correlation of life skills deficits with psychopathology,<sup>[19]</sup> quality of life,<sup>[20]</sup> cognitive difficulties,<sup>[21,22]</sup> and negative symptoms.<sup>[2]</sup> Even though our study did not reveal statistically significant correlation between individual domains of positive and negative symptom subscales, the correlation between general psychopathology domain and total PANSS scores with the LIADL score points to correlation of psychopathology with instrumental activities of daily living dysfunction. There was also significant association between the positive subscale of the PANSS with the LIADL component of using telephone and between the general psychopathology subscale of PANSS with the LIADL component of shopping. The lack of significance between the other components of the LIADL with the various PANSS subscales can imply that instrumental activities of daily living dysfunction can be present irrespective of the symptom status. This is an area of lacuna in Indian research as most of the studies assessing domains of psychosocial functioning in schizophrenia have focused on cognitive skills, negative symptoms, social functioning, vocational functioning, and overall disability<sup>[23-27]</sup> rather than ADL.

### Cultural influences in performance of instrumental activities of daily living

The demographic variable of gender was significantly associated with overall instrumental activities of daily living dysfunction as well as components of food preparation, housekeeping, and laundry. This could be due to the cultural norms of India where males are not generally expected to do these activities. However, considering the dysfunctional nature of schizophrenia and the burden it poses on the family, training in independent living skills would be essential regardless of the gender. The level of education was also significantly associated with overall instrumental activities of daily living dysfunction as well as components of using telephone and transportation. The results also imply association between various other demographic variables such as age, duration of illness, socioeconomic status, marital status, and employment status with different components of instrumental activities of daily living. There is scope of studying the impact of age of onset and duration of illness, education, and occupation on instrumental activities of daily living.

### Implications for practice

Outcome measures in schizophrenia should not only just be limited to clinical factors such as psychopathology but also on social factors such as functioning. This will eventually lead to intervention strategies being more client centered in that interaction between both these factors will be considered and subsequently targeted during service delivery.<sup>[15]</sup> While in developed countries, there is an amalgamation of acute care and community care services for people with chronic mental illnesses, this is not so for low- and middle-income countries. When patients are sent home with their psychopathological symptoms controlled yet not independent, the burden of care falls on the family. This burden is increased due to stigma, economic disadvantage and lack of supportive community services to ensure reintegration. Therefore, unless the independent living skills requirements of the patient population are addressed successfully, their felt needs would not be met.

## CONCLUSION

Impairments in functional performance are characteristic of schizophrenia. Interventions focusing on independent living skills seem to lead to better outcomes for patients in addition to reducing burden on family and community. In India, focus on self-care activities is a common unmet need for patients, and there is also lack of research done in this particular area. This insufficiency needs to be addressed through making activities of daily living training a part of all routine mental health interventions. Researchers



should also focus on evaluating the extent and impact of functional deficits among people with Schizophrenia to make rehabilitative measures more efficient.

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### Conflicts of interest

There are no conflicts of interest.

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