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The Disability Profile of Patients with Schizophrenia in Psychiatric Hospital and Community Settings in Singapore

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ABSTRACT

The disability profile of persons with schizophrenia in Singapore and how disability levels vary in patients cared for in the community and in the long-stay wards of a state mental hospital were studied using the Life Skills Profile (LSP).

The inter-rater reliability of the LSP assessed by the intraclass correlation coefficient (ICC), was lower than in the Australian studies. The test-retest ICCs for the total LSP score and the five subscale scores were satisfactory for the hospitalised subjects and for the community psychiatric nurse subjects, but generally poor for the community care facility subjects. The average ICCs were lower compared to the Australian study. Female hospitalised subjects but not male hospitalised subjects returned higher disability scores on all LSP scales compared to community subjects.

This study provided some preliminary data on the usefulness and validity of the LSP in a multi-ethnic Asian setting like Singapore. If the LSP is used as a measure of disability in schizophrenia, it would appear that ratings should only be made by those who know the subject well, and that raters should be formally trained mental health professionals.

Keywords: schizophrenia, disability, Life Skills Profile, community care, long-stay

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INTRODUCTION

To date, no systematic study had been conducted on the disability profile of persons with schizophrenia in Singapore and how disability levels vary in persons cared for in the community as opposed to those in the long-stay wards of a state mental hospital.

The Life Skills Profile (LSP) is a 39-item scale which was developed as a measure assessing function and disability in persons with schizophrenia in the community[1]. Stated advantages include ready administration without need for special training, its brevity and jargon-free language. Parker et al demonstrated that it had high inter-rater reliability and high test-retest reliability in an Australian sample[2]. In another Australian study Trauer et al however found that while internal consistencies were generally good inter-rater reliabilities were of only marginal acceptability[3]. In a subsequent study, Trauer et al found that clients in the community scored significantly higher on the LSP scale, indicating less disability than for those in hospital[4]. Kirby et al also found that LSP scores were highest in patients attending community centres compared to psychiatric hospital inpatients and patients in long-term rehabilitation programmes[5].

Such studies indicate that the LSP does detect differential levels of disability in patients in hospital and community settings. Conversely, it allows testing of a 'real world' assumption that those patients with greater disability are unlikely to survive in the community and thus may require hospitalisation.

Thus, Australian studies suggest high reliability and likely discriminant validity in distinguishing hospitalised and non-hospitalised subjects with schizophrenia using the LSP.

The specific aims of the present study were then to measure the inter-rater reliability and test-retest reliability of the LSP in Singapore and to determine whether the LSP demonstrated similar discriminant validity in a sample of patients with schizophrenia in Singapore. Additionally, the study would establish normative data for the LSP across different care settings which might then assist discharge planning in other samples by identifying hospitalised patients with low disability.

METHOD

The inclusion criteria for study subjects were:

i) Persons with a diagnosis of Schizophrenia or Schizoaffective Psychosis
ii) No mental retardation
iii) No co-existing alcohol or drug abuse

Subjects were chosen by random sampling from the two care settings. The subjects in the hospital setting consisted of 25 male and 25 female patients who had

Table I. Comparisons of demographics across four study groups.

Characteristic	Hospitalised males	Hospitalised females	Day care	Case managed	Overall group differences F	P
Age	45.5	54.8	37.8	40.4	18.3	<0.001
Age at disorder onset	25.6	25.2	24.2	25.3	0.13	0.94
Average age at first hospitalisation	26.6	26.1	27.5	25.6	0.19	0.90
Years of education	6.1	3.5	9.4	8.4	17.7	<0.001
Total number of hospitalisations	11.4	9.6	4.1	7.3	4.7	<0.05
Total number of hospitalisations in last five years	3.1	1.8	1.6	2.6	3.5	<0.05
Number of hospital days in last five years (1,825 days)	1,505.6	1,728.8	30.3	85.9	438.8	<0.001

stayed at least one year in two adjacent 48-bedded long-stay wards of the state mental hospital.

The community sample consisted of 25 subjects on the case-load of a community psychiatric nurse ('case managed' subjects) and 25 subjects attending a community-based day care facility ('day care' subjects).

The raters met the following criteria:

i. Had been in contact with the subject for at least one month to make valid LSP ratings
ii. Were psychiatric trained nurses in a state mental hospital, a community psychiatric nurse, or a case-manager at a community-based day care facility

Two raters at each clinical setting were presented with copies of the LSP for completion. The researcher (P.W.E) was available to answer questions but no additional training was provided to the raters. Each pair of raters rated the same 25 subjects at each care setting at baseline (the inter-rater reliability study).

One month after the baseline rating, one of the paired raters completed the LSP again on the same patient set (the test-retest reliability study).

RESULTS

LSP rating issues

The hospital-based raters found difficulty in scoring five items due to the hospital setting. These were: taking prescribed medication without reminder (item 17), preparing own food/meals (item 23), being able to budget to live within own means (item 24), getting into trouble with the police (item 36), and abuse of alcohol or drugs (item 37). To allow comparisons to be made across differing settings, these five items were deleted from the ratings in all settings, reducing the potential LSP total score range from 39-156 to 34-136.

Sample description

Of the 100 subjects, 51 were male. In terms of race, 90 were Chinese, six Malay, three Indian and one of "another" background.

Table I data show that the current mean age was significantly different across the groups and highest in the hospitalised females. The age of onset and the age at first hospitalisation did not differ across the four groups. Those hospitalised had had fewer years of education, a greater number of hospitalisations and, as expected, had been in hospital over the last five years for much longer periods (in fact, for most of that period).

INTER-RATER RELIABILITY DATA

Table II data report inter-rater reliability data for three of the groups. As in the Australian study, we report intra-class correlation coefficients (ICC) but not on the Pearson (r) coefficients. Such analyses could not be obtained for the case managed sample due to there being no second community psychiatric nurse who knew the subjects sufficiently well to undertake ratings.

Parker et al reported inter-rater ICCs of 0.73, 0.75, 0.65, 0.53 and 0.68 for the Self-care, Non-turbulence, Social Contact, Communication and Responsibility sub-scales of the LSP respectively[2]. Our three pairs of raters generated average ICCs of 0.54, 0.59, 0.61, 0.60 and 0.30.

The total LSP scores had higher inter-rater reliability coefficients, ranging from 0.53 to 0.72 across rate pairs, and averaged 0.61 (compared to values ranging from 0.77 to 0.83 in the Australian study[2]).

TEST-RETEST RELIABILITY DATA

The test-retest reliability (intra-class correlations) data are detailed in Table III. The test-retest ICCs for the total LSP score and for the five subscale scores were satisfactory for the hospitalised subjects and for the case managed subjects. The test-retest ICCs for the day care subjects were poor, except for the self-care subscore. The average ICCs across the four groups ranged from 0.47

Table II. Inter-rater reliability data, examined by intraclass correlation(ICC).

LSP Scale		Hospitalised males		Hospitalised females		Day care	
		R1	R2	R1	R2	R1	R2
Self-care	Mean	27.7	29.5	24.7	24.4	28.6	29.7
	ICC	0.40**		0.51**		0.71***	
Non-turbulence	Mean	37.9	38.4	32.2	32.8	38.2	38.4
	ICC	0.61***		0.56**		0.59**	
Social contact	Mean	16.5	17.0	10.9	12.9	14.3	18.
	ICC	0.79***		0.58***		0.47***	
Communication	Mean	21.1	21.1	21.4	18.1	21.6	21.3
	ICC	0.80***		0.40***		0.59**	
Responsibility	Mean	14.0	15.5	6.0	13.6	15.8	15.7
	ICC	0.21*		0.02		0.66***	
Total	Mean	117.3	121.6	95.1	101.8	118.5	123.3
	ICC	0.72***		0.53***		0.58***	

R1 = rater 1, R2 = rater 2. *P<0.05, **P<0.01, ***P<0.001.

Table III. Test-retest reliability examined by intraclass coefficient (ICC).

LSP Scale		Hospitalised males		Hospitalised females		Day care		Case managed	
		T0	T1	T0	T1	T0	T1	T0	T1
Self-care	Mean	29.5	28.2	24.7	25.2	29.7	30.2	28.8	29.2
	ICC	0.53***		0.71***		0.71***		0.51**	
Non-turbulence	Mean	38.4	37.5	32.2	32.6	38.4	39.7	36.1	36.2
	ICC	0.54**		0.57**		0.21		0.55**	
Social contact	Mean	17.0	15.9	10.9	10.7	18.1	22.8	15.8	14.7
	ICC	0.83***		0.77***		0.18*		0.73***	
Communication	Mean	21.1	20.6	21.4	22.2	21.3	23.5	22.0	22.4
	ICC	0.86***		0.66***		0.30*		0.62***	
Responsibility	Mean	15.5	15.2	6.0	5.7	15.7	16.0	13.4	14.0
	ICC	0.40*		0.60***		N/A		0.78***	
Total	Mean	121.6	117.4	95.1	96.5	123.3	132.3116.0	116.5	
	ICC	0.70***		0.85***		0.25***		0.77***	

T0 = at test, T1 = test-retest
*N/A coefficients not able to be calculated due to lack of variance.

to 0.63 for the subscales and 0.64 for total LSP scores. These coefficients are lower compared to the respective subscale values of 0.78 to 0.90, and 0.89 for total LSP scores in the Australian study[2].

DISCRIMINANT VALIDITY OF THE LSP

By examining LSP scores across the four groups we sought to examine the discriminant validity of the LSP, in that less disability (higher scores) would be anticipated for the non-hospitalised subjects. While the Table IV analyses offer support across all LSP sub-scales and total scores, it can be observed that the male hospitalised subjects returned very similar scores to the community groups (i.e. a total LSP score of 119.5 compared to 120.9 and 116.0 respectively).

DISCUSSION

This study provides some data on the usefulness, reliability, validity and practicality of the LSP in a multi-ethnic Asian setting like Singapore. As detailed in the results, both our inter-rater and test-retest reliability estimates were lower than reported in the original Australian studies. As both studies relied on staff to rate patients, we can only assume that regional differences reflected greater difficulties in accurately rating patients in the Singapore context, which could reflect patient variables (e.g. not evidencing behavioural variables so clearly) or rater variables (e.g. difficulty in understanding LSP items, not knowing the patient sufficiently well to rate validly or being less motivated to rate accurately). As our test-retest data for the day

Table IV. Comparisons of LSP scores, across four study groups.

Locations	Hospitalised males	Hospitalised females	Day care	Case managed	Overall group differences		All hospitalised subjects	All community subjects		
					F	P			t	P
LSP scale										
Self-care	28.6	24.6	29.1	28.8	14.7	<0.001	26.6	29.0	-3.8	<0.001
Non-turbulence	38.2	32.5	38.3	36.1	29.9	<0.001	35.3	37.2	-2.9	<0.01
Social contact	16.8	11.9	16.2	15.8	8.7	<0.001	14.3	16.0	-2.1	<0.05
Communication	21.1	19.7	21.5	22.0	4.3	<0.01	20.4	21.8	-2.8	<0.05
Responsibility	14.8	9.8	15.7	13.4	80.6	<0.001	12.2	14.6	-4.7	<0.001
Total	119.5	98.5	120.9	116.0	30.9	<0.001	108.8	118.5	-4.0	<0.001

care sub-sample were the least satisfactory, this could indicate that the day care raters were less acquainted with their patients' day-to-day functioning and that this limited accurate state ratings, or, of course, that the patient sub-group showed some variability in functioning over time, creating some level of inconsistency.

The hypothesis that community patients would rate on the LSP as having lower disability than hospitalised patients was not confirmed. While LSP scores for the female hospitalised patients were lower than the community group, LSP scores for the male hospitalised patients were very similar to the community group. If not due to invalid ratings, the likely determinants are that the community patients had high disability levels or, conversely, that the male hospitalised patients had low disability levels. In regard to the latter, the male hospitalised subjects were staying in a ward in which there was a structured rehabilitation programme targeted at a group of patients with shorter hospital stays and may thus have benefited from participating in some of these activities. If this was so, this may indicate that there is a group of male hospitalised patients who do not need to stay in the mental hospital and accommodation in the community would be more appropriate. A possible reason for this sex difference is that in the Asian context a man is expected to be gainfully employed and it is more socially unacceptable for an unemployed male person than a female person to be living at home with family members.

We established that some LSP items cannot be validly rated in hospitalised patients, of importance in suggesting that the LSP is likely to be a better "in vivo" measure, an issue not noted in the Australian studies. This required us to delete five items from the analyses and, together with small sub-sample sizes, obviated our objective of determining normative data for schizophrenic subjects in Singapore. However, our mean scores (after excluding the five problematic items for rating) serve as a reference for future studies using the LSP in Singapore.

Another question that arose out of this study was whether in Singapore the LSP should be administered by a mental health professional, and whether it requires some explanation and training prior to administration. The low test-retest ICC for the day care group raters (case managers who underwent in-house but not formal mental health training) as opposed to the hospitalised and case-managed group raters (registered psychiatric nurses) seem to indicate that, if the LSP is to be used as a measure of disability, it should be administered by a professional with formal mental health training.

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