Original paper

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Factors affecting the duration taken to present to the National Institute of Mental Health (NIMH) after an acute episode of schizophrenia

P D L R Wijesinghe, M I Muthuarachchi, M Dayabandara, R Jayasinghe

Abstract

Background

Longer duration of untreated/inadequately treated psychosis in schizophrenia is associated with poor long-term prognosis. Study was conducted in a period when country was facing the COVID-19 pandemic affecting many aspects of the people's lives.

Aim

This study aimed to estimate the duration taken to present to the NIMH and the demographic, socio-cultural and clinical factors associated with duration taken to present to NIMH, after an acute episode of schizophrenia. Also to identify the reasons for that duration as reported by patients and relatives.

Method

This was a descriptive cross-sectional study done on 139 patients, aged between 18-60 years, admitted to NIMH with an acute episode of schizophrenia. An interviewer administered questionnaire and Brief Psychiatric Rating Scale (BPRS) were used for data collection.

Results

Mean duration taken to present to the NIMH after onset of an acute episode of schizophrenia was 12-49 months. Living condition, illness course, patients and relatives believing supernatural causes as the reason for the symptoms, relatives not believing symptoms as due to a mental illness, unavailability of additional support and fear of infecting COVID in hospital premises have significant associations with duration taken to present to NIMH after an acute schizophrenia episode.

Conclusion

Steps to activate the new mental health act, increasing mental health awareness in the community and more community services supporting decentralization of the psychiatric services will act to reduce the duration taken to present to the NIMH after onset of an acute episode of schizophrenia improving the long-term prognosis.

Keywords: schizophrenia, DUP, NIMH, delay,

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Introduction

Schizophrenia contributes to a major part of the global burden of the disease (1,2,3,4). Identification of factors prolonging the duration taken to present to the psychiatric services after an acute episode of schizophrenia will help to improve the prognosis (5,6,7,9,10).

Duration of Untreated Psychosis (DUP) values for schizophrenia from Sri Lankan studies vary markedly and were done with small sample sizes drained from a restricted area (6,11,12,13,14).

This study intended confirming the DUP for schizophrenic patients in Sri Lanka and to examine factors affecting the duration taken to present to the NIMH after an acute episode. Study was conducted in a period when country was facing the COVID-19 pandemic affecting many aspects of the people's lives.

Methodology

This is a descriptive cross-sectional study, done on all the consecutive patients between 18-60 years, admitted to NIMH (low and moderate COVID risk wards) diagnosed with acute episode of schizophrenia (International Classification of Disorders – ICD-10) either in first episode or in relapse. Patients diagnosed with organic mental disorders, patients admitted and

discharged from high COVID risk wards and patients with unreliable data were excluded.

Sample size was 139 ($N = 4Z^2 \alpha S^2 / W^2$) (13). An interviewer administrated questionnaire and Brief Psychiatric Rating Scale (BPRS) were used to collect data. Information was gathered from patient, clinical records and an immediate family member. If there was a discrepancy, another family member was contacted via telephone with consent from patient. Patient was excluded only if reliability of information was uncertain.

Duration taken to present to the NIMH was analyzed by calculating the mean value. Chi square test and independent sample t test were used to analyze associations between categorical variables. Correlations between continuous variables were analyzed using Pearson's correlation coefficient.

Results

Associations between socio-demographic characteristics of the study population and the duration taken to present to NIMH or any other psychiatric services were significant only for the living condition of the participants.

Table 1. Socio demographic characteristics of the study population. Out of 139 subjects,11(7.91%) were suffering with the first episode of schizophrenia.

Table 2. Clinical characteristics of the study population. Mean BPRS scores for the whole study population, for patients with first episode and for patients with chronic schizophrenia were 13.28 (SD=4.07), 13.27 (SD=6.45) and 13.28 (SD=3.83) respectively.

Pattern of presentation to the mental health services/NIMH after onset of an acute episode of schizophrenia and factors affecting it

Mean duration taken to present to the psychiatric services for all the participants, after the onset of acute episode was 5.77 months (SD=18.53). Majority (47.5%) has presented after one month of onset of symptoms but less than 6 months. Only 32.4% presented before one month of symptoms and 7.9% presented one year after the onset of symptoms. For the patients presented with the first episode, this duration ranged from 0.5-168 months and the mean duration was 37.32 months (SD=56.93). Majority (45.9%) has presented after one year. Patients with chronic schizophrenia have presented to a mental health facility after a mean duration of 3.06 months (SD=4.93).

Duration taken to present to the NIMH after onset of acute episode for all the participants ranged from 0.5 to 240 months. Mean duration was 12.49 (SD 31.63). Majority (42.4%) presented to the NIMH after one month of onset of symptoms but less than 6 months. Only 20.1% presented before one month of symptoms and 26.6% presented one year after symptoms. Duration taken to present to the NIMH after the onset of acute episode for the patients presented with the first episode ranged from 0.5 to 192 months and the mean duration was 39.5 (SD=62.6). Majority (45.5%) has presented after one year or more. Duration taken to present to the NIMH after the onset of acute episode for the patients with chronic schizophrenia ranged from 0.25 to 240 months and the mean duration was 10.17 (SD=26.64).

Illness course had significant associations both with the duration taken to present to a psychiatric service and to NIMH after onset of an acute episode of schizophrenia. Majority (82.7%) presented to the mental health services as the first point of contact after developing symptoms. Out of them 63.3% has presented to NIMH as the first mental health contact and for 32.4% it was a tertiary care hospital with a consultant psychiatrist. Only 4.3% have consulted a private sector consultant psychiatrist.

Out of 11 participants who did not present to the mental health services as the first point of contact, 10 have presented to traditional healers.

A significant number of patients believed that disease was due to a supernatural cause.

Table 3. Factors affecting the delay in presentation to the psychiatric service (according to the patients).

Table 4. Factors affecting the delay in presentation to the psychiatric service (according to the relatives).

Relatives' fear of infecting COVID-19 in the hospital premises, relatives not believing that symptoms were due to a mental health condition and believing that symptoms were due to supernatural causes had significant associations with delay in presentation to the mental health unit after an acute episode of schizophrenia.

Majority of the patients (59.0%) believed that their symptoms were due to a malevolent charm. Only 0.7% believed symptoms are due to a mental illness and 4.3% believed physical illnesses as the reason. Stress was described as the reason for the symptoms by 14.4%. Bad time/horoscope and bad company were considered as reasons for the symptoms by 6.5% and 2.2% respectively. A considerable percentage (12.2%) did not believe that symptoms are abnormal.

Among relatives, all identified symptoms as abnormal and majority (86.3%) believed that their loved ones' symptoms were due to a mental illness. Only 1.4% believed symptoms are due to physical illnesses and 5% believed malevolent charm as the reason for the symptoms. Stress was described as the reason for the symptoms by 2.9%, bad time/horoscope and substance were considered as reasons for the symptoms by 2.2%.

Table 1. Socio demographic characteristics of the study population

	Number (%)
Gender	
Male	77 (55.4%)
Age (years) distribution – Mean=44.76, SD =13.507	
Under 20	01 (0.7%)
20 - 39	53 (38.1%)
40 - 59	59 (42.4%)
60 - 79	26 (18.7%)
80 and more	00 (0.0%)
Marital status	
Never married	73 (52.5%)
Married	44 (31.7%)
Separated/Divorced	20 (14.4%)
Widowed	02 (1.4%)
Ethnicity	
Sinhalese	114 (82.0%)
Tamil	13 (9.4%)
Muslim	08 (5.8%)
Christian	03 (2.2%)
Other	01 (0.7%)
Religion	
Buddhist	107 (77.0%)
Hindu	10 (7.2%)
Islam	08 (5.8%)
Catholics	13 (9.4%)
Other	01 (0.7%)
Educational level	
Less than Ordinary Level	55 (39.6%)
Ordinary Level (O/L)	49 (35.3%)
Advanced Level (A/L)	28 (20.1%)
Higher Education	07 (5.0%)
Occupation	
Technical and associate professionals	03 (2.2%)
Service and sales workers	03 (2.2%)
Skilled agricultural, forestry and fishery workers	03 (2.2%)
Craft and related trades workers	01 (0.7%)
Plant and machine operators and assemblers	05 (3.6%)
Elementary occupations	19 (13.7%)
Armed forces	02 (1.4%)
Currently unemployed	43 (30.9%)
Never did a job	60 (43.2%)
Managers and professionals	00 (00%)
Duration of unemployment	
Currently employed	36 (25.9%)
Unemployed for 6 months or less	04 (2.9%)
Unemployed for more than 6 months to one year	08 (5.8%)
Unemployed for more than one year	31 (22.3%)
Never did a job	60 (43.2%)
Monthly income (Average monthly income 40,619.57 Sri Lankan Rupees, SD 34464.02)	
0-5000	04 (2.9%)
5001- 10000	06 (4.3%)
10001-20000	35 (25.4%)
20001-50000	68 (49.3%)
50001-100000	23 (16.7%)
100000 above	02 (1.4%)
Missing data	01 (0.7%)
Living conditions	
Living alone	13 (9.4%)
With parents or siblings	73 (52.5%)
With partner or children	37 (26.6%)
In care homes	07 (5.0%)
Other	09 (6.5%)
Available social supports	
Nuclear family support	108 (77.7%)
Extended family support	31 (22.3%)
Support from friends	19 (13.7%)
Support from employers/work mates	02 (1.4%)
Community psychiatric team	00 (00%)
MOH/PHM/community health care workers	00 (00%)
Grama niladhari and administrative figures	01 (0.7%)
Priests	01 (0.7%)
Villagers	11 (7.9%)
Police	13 (9.4%)
Area of residence (Province)	
Western	83 (59.7%)
Southern	08 (5.8%)
Central	01 (0.7%)
Uva	06 (4.3%)
North Central	02 (1.4%)
Northwestern	21 (15.1%)
Eastern	01 (0.7%)
Sabaragamuwa	17 (12.2%)
Northern	00 (00%)
Distance from home to a hospital with mental health facility (Average distance 9.0755km, SD 7.19)	
Less than 10km	85 (61.2%)
10km - 19km	40 (28.8%)
20km - 29km	11 (7.9%)
30km or more	03 (2.2%)

(Continued)

Table 2. Clinical characteristics of the study population

	Number (%)
Duration of the schizophrenia illness (Mean 162.32 months, SD 134.68)	
Less than 2 years	17 (12.2%)
2 years or more but less than 5 years	20 (14.4%)
5 years or more but less than 10 years	26 (18.7%)
10 years or more	76 (54.7%)
Psychiatric co-morbidities	
Neurotic disorders	02 (1.4%)
Substance use disorders	34 (24.5%)
Organic psychological conditions	03 (2.2%)
Affective disorders	01 (0.7%)
Eating, sexual or sleeping disorders	01 (0.7%)
Personality disorders	01 (0.7%)
Mental retardation	05 (3.6%)
Medical co-morbidities	
Diabetes Mellitus	18 (12.9%)
Hypertension	09 (6.5%)
Hyperlipidaemia	10 (7.2%)
Ischemic Heart Disease	07 (5%)
Liver, renal and GI diseases	01 (0.7%)
Medications prescribed for the subjects at the time of presentation to the NIMH	
Antipsychotics	124 (89.2%)
Antidepressants	05 (02.3%)
Mood stabilizers	24 (10.9%)
Benzodiazepines	17 (07.7%)
Promethazine	01 (05.5%)
Trihexyphenidyl (Benzhexol)	50 (22.6%)
Records missing	15 (10.8%)
Not relevant (first episode)	11 (7.9%)
Medication compliance	
Good	32 (23%)
Poor	96 (69.1%)
Not relevant (First episode)	11 (7.9%)
Duration of medication noncompliance (Mean 10.02 months, SD 25.82)	
Well complied	32 (23%)
Less than one month	06 (4.3%)
One month to 5.9 months	38 (27.3%)
6 months to 11.9 months	18 (12.9%)
More than a year	33 (23.7%)
Not relevant / Missing records	12 (8.6%)
Presenting symptoms	
Poor sleep	49 (35.3%)
Irritability	100 (71.9%)
Poor appetite	00 (00%)
Bizarre behaviour	125 (89.9%)
Suicidal/self-harm behaviour	12 (08.6%)
Disinhibition	05 (03.6%)
Affective symptoms	00 (00%)
Wandering	33 (23.7%)
Negative symptoms	21 (15.1%)

(Continued)

Table 3. Factors affecting the delay in presentation to the Psychiatric service (according to the patients)

		Yes (Mean duration taken to present to psychiatric services)	No (Mean duration taken to present to psychiatric services)	Mean difference	Significance
Factors related to the COVID-19 pandemic	Curfew	02 (1.2)	137 (5.83)	4.58	0.61
	Fear of infecting COVID-19 in the hospital premises	01 (2.00)	138 (5.79)	3.79	

(Continued)

		Yes (Mean duration taken to present to psychiatric services)	No (Mean duration taken to present to psychiatric services)	Mean difference	Significance
Factors related to the COVID-19 pandemic	Difficulties in the transport	00	139	00	
	Quarantined (Self/ enforced)	00	139	00	
	Came to the hospital but turned back without medication	00	139	00	
Believes in alternative treatment		04 (5.68)	135 (5.77)	0.08	0.926
Thinks disease was due to supernatural causes		12 (17.29)	127 (4.68)	- 12.60	0.000
Did not think symptoms were due to a mental illness		119 (6.39)	20 (2.08)	-4.30	0.126
Thought symptoms were due to a physical illness		01 (2.00)	138 (5.79)	3.79	
Thought symptoms would resolve naturally		08 (2.7)	131 (5.95)	3.20	0.401
Not aware about psychiatric services		00	139	00	
Due to cost of medicine		00	139	00	
Unavailability of additional support to bring the patient to the hospital		04 (0.81)	135 (5.91)	5.10	0.458
Stigma		00	139	00	

95% CI

Table 4. Factors affecting the delay in presentation to the Psychiatric service (according to the relatives)

		Yes (Mean duration taken to present to psychiatric services)	No (Mean duration taken to present to psychiatric services)	Mean difference	Significance
Factors related to the COVID-19 pandemic	Curfew	31 (4.91)	108 (6.01)	1.09	0.477
	Fear of infecting COVID-19 in the hospital premises	15 (14.05)	124 (4.77)	-9.27	0.001

(Continued)

		Yes (Mean duration taken to present to psychiatric services)	No (Mean duration taken to present to psychiatric services)	Mean difference	Significance
Factors related to the COVID-19 pandemic	Difficulties in the transport	22 (3.34)	117 (6.22)	2.88	0.206
	Quarantined (Self/ enforced)	00	139		
	Came to the hospital but turned back without medication	02 (0.87)	137 (5.84)	4.96	0.575
	Received wrong information	05 (2.60)	134 (5.88)	3.28	0.461
Believes in alternative treatment		07 (10.96)	132 (5.49)	-5.46	0.264
Thinks disease was due to supernatural causes		07 (40.89)	132 (3.90)	-36.98	0.000
Did not think symptoms were due to a mental illness		17 (25.75)	122 (2.98)	22.76	0.000
Thought symptoms were due to a physical illness		02 (1.75)	137 (5.83)	4.08	0.582
Thought symptoms would resolve naturally		30 (3.23)	109 (6.47)	3.23	0.229
Not aware about psychiatric services		01 (120)	138 (4.94)	115.056	
Due to cost of medicine		01 (18.00)	138 (5.68)	-12.31	
Unavailability of additional support to bring the patient to the hospital		84 (3.92)	55 (8.58)	4.65	0.005
Stigma		07 (5.00)	132 (5.81)	0.81	0.813

95% CI

Discussion

Mean duration taken to present to the psychiatric services after the onset of acute episode was less compared to the duration taken to present to the NIMH, as NIMH was a second or later point of contact for the patients from peripheral areas.

Mean duration taken to present to the psychiatric services for the patients suffering from first episode of schizophrenia closely resemble the average mean duration of untreated psychosis (DUP) in studies with data from low and middle-income countries (6,40). However, the value is higher than a value found in a previous Sri Lankan study (13). This could be because of the larger sample size with participants from all over the island with more generalizability of results.

Mean duration taken to present to the psychiatric services for patients with chronic schizophrenia was 3.06 months (SD=4.93). Author did not find any study done locally or

internationally to detect the duration taken to present to the psychiatric services after the onset of acute episode for the patients with chronic schizophrenia.

Median age of the study population was higher compared to the median age of the Sri Lankan population (41). This could be due to exclusion of people younger than 18 years. The study population was consisted of more males, closely representing the trends of mental health admissions to government hospitals (18). Percentages according to the religion and race closely resemble the country's population (42). There were no significant associations between the duration taken to present to the psychiatric services and age or gender which suggests less discrimination of service distribution.

Majority of the study population were single similar to the findings from several other similar local and international studies (14,43,44). This could be related to reduced opportunities, social stigma, poor social skills and functional deterioration.

Patient draining pattern does not represent the country's population distribution and could be more related to the proximity to the NIMH, easy transport and availability of mental health services in the provinces with service decentralization (42).

In the study population many have received an education up to ordinary level or less. This indicates the functional deterioration with poor educational and social outcomes observed in schizophrenia (4,45,46).

Unemployment rate in the study population was higher than the unemployment rate found in several previous similar local and international studies and the general population in Sri Lanka for 2021 (6,47,48,49). This could be a reflection of the functional deterioration, stigma and discrimination (4,46,47). In the study population 2.9% were unemployed only for 6 months or less and the impact of the COVID-19 pandemic to increase the overall unemployment in Sri Lanka should also be considered (50).

Average monthly income of the participants closely resembles the per capita income of Sri Lanka (48). Value ranged from 5000 Rupees to 190000 Rupees per month and 25.2% were getting a monthly income of 20000 or less.

Study did not find a significant association between the duration taken to present to the psychiatric services and education level or employment status, different to similar studies done in India (49,51). This could be due to free health, infrastructure development, availability and equal accessibility to the mental health services.

Majority were living either with parents or siblings contrast to a previous Sri Lankan study (14). In both these Sri Lankan studies percentages of participants living alone is less compared to the percentage living with someone else, findings similar to some international studies (52,53). Association between the duration taken to present to the NIMH or other psychiatric services after the onset of acute episode of schizophrenia and the living condition was significant ($P<0.001$).

Majority has received nuclear family support. None has received support from community psychiatric team/ Medical Officer of Health/Public Health Midwife or other community health workers, an eye opening to reflect on efficacy of the community health services.

Majority were living within 10km distance from the mental health services and investigator did not find a significant association between the duration taken to present to the psychiatric services and distance from home to a hospital with mental health facility, different to several other international studies (51,54,55).

There was a significant association between the illness course (first episode vs relapse) and the duration taken to present to NIMH or other psychiatric services ($P<0.001$).

In study population 46 (33.1%) were suffering from one or more psychiatric co-morbidities, a higher percentage compared to a previous Sri Lanka study (6). Substance use was the commonest psychiatric co-morbidity similar to previous literature (56). No significant association between presence of psychiatric co-morbidities and duration taken to present to psychiatric services.

Commonest medical co-morbidity was diabetes mellitus. Sri Lankan values are markedly less than a study done in India (6,57).

Commonest presenting symptom in this study was bizarre behaviour different to a previous Sri Lankan study, in which the commonest symptom was delusions (35).

In this study majority of participants believed that the reason for their symptoms was a malevolent charm contrast to a previous similar Sri Lankan study in which majority has identified mental illness as the reason for their symptoms (14). This could be due to the difference in study setting as this study included acute in patients, who were acutely unwell, whereas the previous study was done in an outpatient mental health clinic involving the community patients in remission.

Relatives of 84 participants reported unavailability of additional support as the reasons for the delay in presentation, which has a significant association with the duration taken to present to a mental health service after an acute episode of schizophrenia. Though in other countries the mental health act permits involuntary assessment, transport and admission to authorized

mental health services, Sri Lankan mental health legislation has its own limitations reducing available means and supports to bring an acutely unwell patient for an assessment (58,59,60). Hence, relatives of the patients have to find their own ways to transport acutely unwell patients to the mental health services. This is a main obstacle to the developing mental health services island wide and the need for a change in mental health act was highlighted in many occasions (34,60). National mental health help line (1926) is a giant step kept forward to reduce the treatment delay in mental health and other crisis management but it should be supported with mental health act changes and out reached crisis management teams.

Majority of the relatives identified mental illness as the reason for the symptoms. This could be the reason why majority of the participants presented to the mental health service as the first point of contact despite they do not believe symptoms are due to a mental illness. Massive influence by the collective society in patients' help-seeking behaviour was evident in this same study by finding a significant association between the duration taken to present to the NIMH/psychiatric services after the onset of acute episode of schizophrenia and the living condition ($P<0.001$) similar to few other Asian studies (14, 49).

In this study the percentage of participants presented to the mental health services as the first point of contact after developing symptoms was 82.7%, which is higher than the findings from a previous Sri Lankan study and several similar Indian studies (14,17,49,51). Most of the Asian studies have found a considerable number of clients presenting to faith healers, traditional healers, alternative medical practitioners and non-psychiatric medical practitioners either as the first point of contact or at any time during the care (17,49,51). In our study, out of 27 participants who did not present to the mental health services as the first point of contact, 10 (7.2% from the total study population) have presented to traditional healers while, 1.4% to alternative practitioners and another 1.4 to western medical practitioners who are not psychiatrists. These are lower percentages compared to a previous similar study done in Sri Lanka on help seeking behaviour by psychiatric patients (14). These might reflect the improvement in mental health literacy, accessibility to mental health services and reduction in stigma over the time.

Participants who presented to the mental health services as the first point of contact have presented either to NIMH or a tertiary care hospital with a consultant psychiatrist or to a consultant psychiatrist in private sector. None have presented to Medical Officer of Health or Out Patient Department which are the main primary health care providers in the country. This is different from developed countries where the general practitioner was the main first point contact even for the mental health care (27,38). Absence of a formal referral system might be the reason for the findings (30). On one hand patients having liberty to access any level of mental health care in any part of the country can be seen as a benefit of free health and a positive thing but at the same time would lead to concentration of work-load in tertiary hospitals causing burnout of the staff there and wasting the services in the peripheries which in turn will impede the attempts to decentralize the services.

This study was conducted after the first wave of COVID-19 pandemic which affected many aspects of the Sri Lankan community. Relatives' fear of infecting COVID-19 in the hospital premises had a significant association with delay in presentation to psychiatric services similar to findings from other studies as well (61).

Conclusions

Mean duration taken to present to the psychiatric services after the onset of acute episode was 5.77 months. Living condition, illness course, patients and relatives believing supernatural causes as the reason for the condition, relatives do not believe symptoms as due to a mental illness, unavailability of additional support and fear of infecting Covid-19 in hospital premises have significant associations with duration taken to present to the NIMH/ psychiatric services. Steps to activate the new mental health act, improving the mental health awareness among the general public and more community services supporting decentralization of the psychiatric services will act to reduce this duration.

P D L R Wijesinghe, Senior Registrar in Psychiatry, National Institute of Mental Health, Sri Lanka

M I Muthuarachchi, Registrar in Community Medicine, Health Promotion Bureau, Sri Lanka

M Dayabandara, Consultant Psychiatrist, National Hospital of Sri Lanka

R Jayasinghe, Consultant Psychiatrist, National Institute of Mental Health, Sri Lanka

Corresponding author: P D L R Wijesinghe

E-mail: dhanojawijesinghe@gmail.com

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