

ORIGINAL ARTICLE

FACTORS INFLUENCING INPATIENT DURATION AMONG INSANITY  
ACQUITTEES IN A MALAYSIAN MENTAL INSTITUTION

*Chan Lai Fong\**, *Phang Cheng Kar\*\**, *Loo Tsui Huei\*\*\**, *Ong Lieh Yan\*\*\**,  
*Tuti Iryani Mohd Daud\**, *Hazli Zakaria \**, *Suarn Singh\*\*\**, *Rabaiah Mohd  
Salleh\*\*\**

\*Department of Psychiatry, Universiti Kebangsaan Malaysia Medical Centre (UKMMC), 56000 Cheras, Kuala Lumpur, Malaysia; \*\*Department of Psychiatry, Universiti Putra Malaysia (UPM) Level 10B Grand Seasons Avenue 72 Jalan Pahang, 53000 Kuala Lumpur, Malaysia; \*\*\* Psychiatric Unit, Hospital Bahagia Ulu Kinta Tanjung Rambutan, 31520 Perak, Malaysia.

Abstract

**Objective:** According to Malaysian law, defendants found not guilty by reason of insanity may be admitted to a psychiatric hospital and discharge is subject to the state ruler's assent. The objective of this study is to examine the clinical, socio-demographic and forensic factors that influence inpatient duration of insanity acquittees in a Malaysian mental institution. **Methods:** This is a cross-sectional study of one hundred and twelve insanity acquittee inpatients in Hospital Bahagia Ulu Kinta from January 2007 to February 2007. Patients with a clinical diagnosis of schizophrenia, major depressive disorder and bipolar disorder were assessed using the Positive and Negative Syndrome Scale (PANSS), Hamilton Depression Rating Scale (HAMD) and Young Mania Rating Scale (YMRS) respectively. Other relevant socio-demographic, clinical and forensic factors were also assessed. **Results:** The inpatient duration varied widely from three months to forty-seven years with a median of seven years. Seventy five percent of patients were in remission. According to the multiple linear regression model, the strongest predictor of a longer duration of hospital stay for insanity acquittees was older age ( $p < 0.001$ ) followed by murder as the index offence ( $p = 0.005$ ). Good family support predicted a shorter inpatient duration. This model explains 56% of the variance in the inpatient duration. **Conclusion:** Social factors such as family support may be increasingly important in determining the discharge process of insanity acquittees besides clinical rehabilitation. Issues such as stigma of violent forensic patients and the role of community forensic rehabilitation services need to be further explored. *ASEAN Journal of Psychiatry, Vol.11 (1): Jan – June 2010: XX XX.*

**Keywords:** Forensic psychiatry, insanity acquittees, inpatient duration

## **Introduction**

According to Malaysian law, defendants found not guilty by reason of insanity (insanity acquittees), can be involuntarily admitted to a psychiatric institution for treatment and rehabilitation. These patients will be sent by the court under section 348(i) of the Criminal Procedure Code (CPC) to an approved psychiatric hospital established under the Mental Disorders Ordinance 1952. Subsequently, after the State Secretary's Office facilitates the conversion of the court order to section 348(ii) CPC, insanity acquittees will essentially remain hospitalized at the pleasure of the State Ruler. The discharge process requires initiation either by the hospital under section 350 CPC or by the patient's relatives under section 351 CPC. Finally, approval from the Medical Director of the hospital, Board of Visitors as well as consent from the State Ruler is mandatory. This highly structured administrative process reflects the high degree of public concern over the risk that insanity acquittees present to the community [1].

Research has shown that the severity of offense committed by insanity acquittees stands out as a significant factor that can predict a longer inpatient duration [2,3]. Also, lengthy periods of inpatient care are common in this population. A study among 225 insanity acquittees showed that more than 50% were hospitalized for at least 2 years. In 10% of the cases, the duration was more than 5 years. Reoffending rates were significantly higher among those who had a history of conviction prior to the index offense [4]. Rehospitalization and rearrest were associated with significantly lower rates of full symptom remission based on subjective impressions by clinicians [5].

There is a need to adopt an outcome focus in this population. Inpatient duration has been studied as an important outcome among these patients [6]. This would reflect on the factors influencing the decision to discharge and assimilate insanity acquittees back into the community as part of the rehabilitative process. Currently, there is no local published data available in terms of factors influencing the inpatient duration of insanity acquittees. Therefore, this study aims to determine clinical, sociodemographic and forensic factors that affect the inpatient duration of insanity acquittees; which will have significant implications on clinical rehabilitation and risk management of these patients in the community as well as mental health policy development locally.

## **Methods**

All 119 insanity acquittees in Hospital Bahagia Ulu Kinta (HBUK) who were inpatients in the forensic wards under section 348(ii) CPC were recruited in this study from 2<sup>nd</sup> of January to the 16<sup>th</sup> of February 2007. A total of 7 patients were excluded, leaving a study sample of 112 who gave written informed consent prior to the study participation. Two patients were too psychotic to be interviewed, two were mute, two refused consent and one patient (Thai national) could not comprehend English or Malay.

The socio-demographic, clinical (including clinical diagnosis made by a consultant psychiatrist) and forensic data were collected from the patients' case notes and via a clinical interview. The abbreviated Positive and Negative Syndrome Scale (abbreviated PANSS) was administered in patients with a diagnosis of schizophrenia to determine the status of remission. This is in

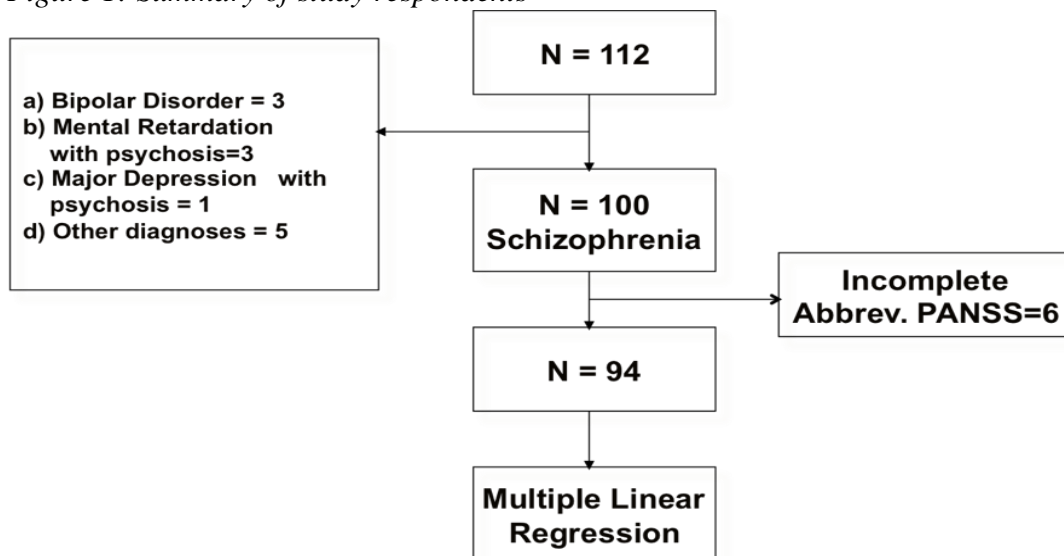
accordance with the Remission in Schizophrenia Working Group [7] whereby remission is defined as simultaneous attainment of a score of 3 (mild), 2 (minimal), or 1 (absent) for a minimum duration of 6 months for all the items in the abbreviated PANSS. In patients with a diagnosis of bipolar disorder, the Young Mania Rating Scale (YMRS) was administered whereby remission was defined as a YMRS score of equal or less than 12. Patients with a diagnosis of Major Depression were defined as being in remission with a Hamilton Rating Scale for Depression (HAMD) score of equal or less than 7. The remission status of patients with other diagnoses were assessed clinically. The administration of the above-mentioned

rating scales were conducted by four trained post-graduate (Masters-level) psychiatry trainees.

Data were entered into SPSS version 12. The inpatient duration was compared between sociodemographic, clinical and forensic groups using the following statistical tests: Kendall, Kruskal-Wallis, non-parametric ANOVA and Mann-Witney *U* test. After bivariate analysis, independent predictive factors of inpatient duration were determined using multiple linear regression. Significance level was set at  $p < 0.05$ .

The Ethics Committee of Hospital Bahagia Ulu Kinta granted ethical approval for this study.

Figure 1: Summary of study respondents



## Results

The study population of 112 insanity acquittees were predominantly male (90.2%) with a median age of 43 years at the time of the study. Overall, the inpatient duration had a wide range from 3 months to 47 years. The majority of patients stayed for less than 10 years (66%).

Patients who were older at the time of the study had significantly longer duration of hospital stay ( $p < 0.001$ ). The racial composition of these patients were fairly representative of the racial composition in Malaysia, i.e. Malay (51.8%), Chinese (33.9%), Indian (11.6%) and others (2.7%). Ethnicity was not significantly associated with inpatient duration. Patients who were Buddhist had significantly longer inpatient duration ( $p = 0.041$ ).

**Table 1. Inpatient duration of insanity acquittees and sociodemographic factors (i)**

	n (%)	Inpatient duration (median months)	p-value
Total, n	112(100)	84.0	
<b>Age</b>			<0.001
<43 years	57(50.9)	41.5	
>43 years	55(49.1)	134.0	
<b>Gender</b>			0.934
Male	101(90.2)	78.0	
Female	11(9.8)	93.0	
<b>Ethnicity</b>			0.348
Malay	58(51.8)	86.5	
Chinese	38(33.9)	78.0	
Indian	13(11.6)	106.0	
Others	3(2.7)	24	
<b>Religion</b>			0.041
Islam	62(55.4)	70.0	
Christian	5(4.5)	14.0	
Buddhist	25(22.3)	133.0	
Hindu	13(11.6)	128.0	
Others	7(6.3)	42.5	

**Table 2. Inpatient duration of insanity acquittees and sociodemographic factors (ii)**

	n (%)	Inpatient duration (median months)	p-value
<b>Marital status</b>			0.617
Single	73(65.2)	70.5	
Married	24(21.4)	55.0	
Separated	3(2.7)	108.0	
Divorced	8(7.1)	120.0	
Widowed	4(3.6)	140.5	
<b>Educational level</b>			<0.001
No formal education	7(6.3)	295.0	
Primary	37(33.0)	117.0	
Secondary	67(59.8)	52.0	
Tertiary	1(0.9)	68.0	
<b>Employment status before admission</b>			0.051
Unemployed	22(19.6)	152.5	
Home-maker	6(5.4)	70.0	
Student	1(0.9)	102.0	
Employed	83(74.1)	70.0	
<b>Living arrangement before admission</b>			0.713
Alone	10(8.9)	48.0	
With others	102(91.1)	84.0	
<i>Family support</i>			<0.001
Good	35 (31.3)	30.0	
Poor	77 (68.8)	120.0	
<i>Working in the hospital</i>			0.017
Yes	53(47.3)	52.0	
No	59(52.7)	120.0	

Educational level was also a significant factor associated with inpatient duration whereby those with no formal education tended to stay much longer (median = 295 months or 24.6 years,  $p < 0.001$ ). Patients

who were unemployed before admission also tended to be hospitalized longer. This association approached statistical significance ( $p = 0.051$ ). After admission, patients who were not working in the

hospital stayed almost twice as long as those who were working in the hospital (p=0.017). Family support was categorized as good if the patients' family were contactable and keen for them to be discharged home. Conversely, if the family was not

contactable and not keen for discharge, family support was considered poor. Patients who had poor family support were hospitalized 4 times longer than those with good family support (p<0.001).

**Table 3. Inpatient duration of insanity acquittees and clinical factors.**

	n (%)	Inpatient duration (median months)	p-value
<b>Diagnosis</b>			0.391
Schizophrenia	100(89.3)	86.5	
Bipolar disorder	3(2.7)	24.0	
Major depression with psychosis	1(0.9)	15	
Mental retardation with psychosis	3(2.7)	151.0	
Psychotic disorder due to epilepsy	2(1.8)	95.0	
Delusional disorder	1(0.9)	68	
Mood disorder due to general Medical condition	2(1.8)	51	
<b>Remission status</b>			0.001
In remission	84(75)	60.0	
Not in remission	28(25)	128.0	
<b>PANSS score</b>			
Positive scale	Median score=3		0.019
<3	56(50)		
>3	56(50)		
Negative scale	Median score =5		<0.001
<5	52(46.4)		
>5	60(53.6)		
General psychopathology scale	Median score =2		0.056
<2	63(56.3)		
>2	49(43.8)		
Total	Median score =11		<0.001
<11	52(46.4)		
>11	60(53.6)		
<b>Comorbidity</b>			
Medical illness	38(33.9)	120.5	0.013
History of substance abuse	44(39.3)	60.0	0.041

Schizophrenia was the primary diagnosis in 89.3% of the cases followed by psychotic disorder secondary to mental retardation or epilepsy (4.5%), primary mood disorders (3.6%), mood disorders due to general medical condition (1.8%) and delusional disorder (0.9%). The type of diagnosis was not significantly associated with inpatient duration. The majority of patients were in remission (75%) and had a significantly shorter inpatient duration (median=60 months or 5 years) compared to those who were not in remission (median=128 months or 10.7 years,  $p=0.001$ ). This is also reflected in the significantly positive correlation between total PANSS scores and

inpatient duration ( $p < 0.001$ ). Among the 3 patients who had a diagnosis of bipolar disorder, 2 were in remission with YMRS scores of 3 and 4 respectively. The 3<sup>rd</sup> patient had an incomplete YMRS score. One patient who had a diagnosis of major depression with psychosis had a HAMD score of 0. Patients with comorbid medical illness were also hospitalized nearly twice as long compared to those without comorbid medical illness ( $p=0.013$ ). A history of substance abuse was present in 39.3% of patients and they had a significantly longer inpatient duration compared to those without substance abuse ( $p=0.041$ ).

**Table 4. Inpatient duration of insanity acquittees and forensic factors.**

	n (%)	Inpatient duration (median months)	p-value
<b>No. of past convictions</b>			0.119
None	93(83.0)	88.5	
1	16(14.3)	47	
2	1(0.9)	84	
3	1(0.9)	0	
4	1(0.9)	135	
>5	1(0.9)	3	
<b>Severity (type) of index offence</b>			
Murder	51(45.5)	130.5	0.001
Non-murder	61(54.5)	53.0	
Violent	105(93.8)	89.0	0.039
Non-violent	7(6.3)	22.0	

The insanity acquittees in this study were predominantly violent offenders (93.8%). Murder was the most common index offense (45.5%), followed by voluntarily causing hurt by dangerous weapons (14.3%) while other violent crimes accounted for 34% of

index offences. The severity of index offence was significantly associated with a longer inpatient duration (violent crime,  $p=0.039$ ; murder,  $p=0.001$ ).

**Table 5: Factors significantly associated with a longer inpatient duration of insanity acquittees using multiple linear regression.**

Variables	Unstandardized Coefficients		Standardized Coefficients	t statistic	p value	95% CI* for B	
	B	Std Error	Beta				
Age	5.1	0.958	0.532	5.326	<0.001	3.198	7.002
Good family support	-52.643	24.966	-0.212	-2.109	0.038	-102.235	-3.051
Murder as index offense	55.068	19.063	0.238	2.889	0.005	17.203	92.934

\*An outlier (outside 3 standard deviations) who was hospitalized for 565 months (47 years) was excluded in this model.

According to the multiple linear regression model, the strongest predictor of a longer inpatient duration for insanity acquittees was older age (Beta = 0.532), followed by murder as the index offence (Beta = 0.238). Good family support was an independent protective factor (Beta = -0.212). In other words, insanity acquittees with good family support were hospitalized for a significantly shorter duration. This model explains 56% of the variance on inpatient duration (Coefficient of determination,  $R^2 = 0.555$ ).

## Discussion

This study's findings concur with previous research in the West which have repeatedly shown that severity of offense is one of the major factors that significantly contribute to a longer inpatient duration among insanity acquittees [2,3,8]. There is some evidence to suggest that punishment is deemed appropriate for insanity acquittees and is accomplished by invoking the concept of dangerousness; which is presumed future violent behaviour [2,9]. This may be explained by the fact that severity of offense has been used as an indicator of dangerousness that may influence decision-making in the discharge process. Quinsey

and Maguire [10] found that forensic clinicians who classified insanity acquittees as dangerous based their judgement to a large extent upon the seriousness of the index offense.

The majority of patients in this study were found to be in remission in terms of psychiatric disorders and they were shown to have a significantly shorter inpatient duration. This may reflect the clinical decision to discharge which is probably related to the concept of dangerousness whereby the risk of future violent behaviour has been shown to be associated with active symptoms of major mental disorders [11,12].

Family support was shown to be an independent predictive factor of inpatient duration but not remission status. This seems to suggest that poor family support may be a barrier in terms of discharge of insanity acquittees who have already achieved clinical stability and adequate rehabilitation. Haque [13] attributed the challenge of community placement of patients from mental institutions (including forensic patients) in Malaysia to the lack of ongoing family support.

Taking into consideration that the severity of offense especially in the case of murder was shown to be another independent predictor of longer inpatient duration, it may be postulated that poor family support is related to the strong stigma attached to violent mental disorder offenders. Therefore, the impact of stigma on inpatient duration of insanity acquittees needs to be explored in future research.

Buddhism was shown to be significantly associated with a longer inpatient duration. This may suggest the cultural role of religion as a factor in determining inpatient duration. However, this was not an independent predictive factor. Thus, the possible interplay between culture and family support needs to be researched further in order to delineate the potential mediating factors involved in family support.

Patients with a higher educational level, without any history of substance abuse and who were under job rehabilitation in the hospital had a significantly shorter inpatient stay which seemed reflective of these factors as good prognostic indicators.

The significant association between older age and longer inpatient duration is expected as the age of the patient was taken at the point of entry into the study. The actual significance of age as an independent predictive factor of inpatient duration may be better understood if the age of the patient was calculated at the point of admission.

Insanity acquittees who have an active major psychiatric disorder and a severe index offense may reflect a central issue of whether they pose an unacceptable risk of dangerousness if they were to be discharged into the community. Therefore, the importance of clinical rehabilitation with the

aim of achieving remission as well as the role of risk assessment prior to discharge are of paramount importance. Such assessments aided by risk assessment instruments, such as the Historical Clinical Risk-20 (HCR-20) which combines actuarial and clinical risk assessment, should be considered. Therefore, the risk of reoffending among this population can be much more reliably assessed [14].

Also, public demands for safety can probably be met by shorter inpatient periods and a longer community period of intensive monitoring and support, with unobstructed access to hospital readmission. A balance needs to be struck between ensuring managing the residual risk these patients pose to the community and optimizing the much-often stretched resources of community-based treatment towards a paradigm shift away from the many well-known disadvantages of institutionalization among forensic patients [8].

Family cohesion is still largely intact in the Malaysian context [15]. This is an area that can be harnessed as a potentially strong resource to support the process of rehabilitation and assimilation of clinically stable insanity acquittees back into the community. Therefore, strategies to improve family engagement such as psychoeducation and efforts to reduce the stigma of mentally ill offenders needs to be emphasized [16].

Insanity acquittees have been found to have high rates of comorbid substance abuse which needs to be addressed in the process of rehabilitation and may affect inpatient duration as well as risk assessment of violent reoffending prior to discharge. Simpson et al [17] showed that 78% of insanity acquittees had a comorbid alcohol/substance abuse or dependence. However, this study showed that only 39.3%

of patients had a history of substance abuse. Though this factor was significantly associated with inpatient duration, it was not an independent predictive factor. Substance abuse may have been underreported in the process of documentation as well as been subjected to recall bias. Improved methods documenting comorbid substance abuse on admission and obtaining corroborative information in future studies may be more helpful in examining this important issue.

The reliability of the PANSS, YMRS and HAMD score could be improved by measuring the inter-rater reliability of the assessors with kappa coefficient. Only patients with a diagnosis of schizophrenia were finally analyzed using multiple linear regression as due to the small number of patients with other diagnoses. In addition, this study is confined to one mental institution. Thus there is limited generalizability to the rest of the insanity acquittees in other psychiatric hospitals with forensic services in Malaysia. Therefore, future multi-centred studies are recommended.

Another limitation of this study is the measurement of family support. The use of a more refined rating scale such as the Perceived Social Support Scale [18] may be included in future studies. A potential factor which may influence the inpatient duration of insanity acquittees in this country is the role of administrative bureaucracy (paperwork “red-tape”) in the discharge process of these patients. This factor was not studied due to the limited resources in the process of data collection which would involve inter-government-agency networking. This may be an area of further research in future.

Finally, conclusions about causal relationships between the variables and outcomes studied cannot be made from a

cross-sectional design. Therefore, future prospective studies would also be recommended in order to gain a better understanding of the complex interplay of factors involved in the rehabilitation of forensic patients with the aim of improving forensic mental health services.

Social factors such as family support may play an increasingly important role in the discharge process of insanity acquittees besides clinical rehabilitation. This is reflective of the challenging process of assimilating them back into the community. Issues such as stigma of violent offenders with psychiatric illness and the role of family engagement as well as public perception need to be addressed in the context of future forensic rehabilitation services.

## **References**

1. Steadman HJ, Coccozza JJ. Public Perceptions of the Criminally Insane. *Hosp Community Psychiatry*. 1978; 29: 457-459.
2. Steadman HJ, Richard AP, Hawkins M, Kiser M, Stephen B. Hospitalization Length of Insanity Acquittes. *J Clin Psychol*. 1983;39:611-614.
3. Silver E. Punishment or treatment? Comparing the Lengths of Confinement of Successful and Unsuccessful Insanity Defendants. *Law Hum Behav*. 1995;19:375-388.
4. Edwards J, Steed P, Murray K. Clinical and Forensic Outcome 2 years and 5 years after admission to a medium secure unit. *J Forensic Psychiatr*. 2002;13(1):68-87.
5. Kravitz HM, Kelly J. An Outpatient Psychiatry Program for Offenders With Mental Disorders Found Not Guilty by

Reason of Insanity. Psychiatr Serv. 1999;50(12):1597-1605.

6. Maden A, Rutter S, McClintock T, Friendship C, Gunn J. Outcome of admission to a medium secure psychiatric unit. 1. Short- and long-term outcome. Br J Psychiatry. 1999; 175:313-316.

7. Andreasen NC, Carpenter JWT, Kane JM, Lasser RA, Marder SR, Weinberger DR. Remission in Schizophrenia: Proposed Criteria and Rationale for Consensus. Am J Psychiatry. 2005;162:441-449.

8. Skipworth J, Brinded P, Chaplow D, Frampton C. Insanity Acquittee Outcomes In New Zealand. Aust N Z J Psychiatry. 2006;40:1003-1009.

9. Harris GT, Rice ME, Courmier CA. Length of detention in matched groups of insanity acquittees and convicted offenders. Int J Law Psychiatr. 1991;14:223-236.

10. Quinsey V, Maguire A. Maximum Security Psychiatric Patients: Actuarial and Clinical Predictions of Dangerousness. J Interpers Violence. 1986;1:143-171.

11. Hilday VA, Swartz MS, Swanson JW, Borum R, Wagner HR. Criminal Victimization of Persons With Severe Mental Illness. Psychiatr Serv. 1999; 50:62-68.

12. Brekke JS, Prindle C, Bae SW, Long JD. Risks for Individuals With

Schizophrenia Who Are Living in the Community. Psychiatr Serv. 2001;52:1358-1366.

13. Haque A. Mental health concepts and program development in Malaysia. Journal of Mental Health. 2005;14(2):183-195.

14. Skipworth J. Rehabilitation in Forensic psychiatry: Punishment or treatment? J Forens Psychiatry Psychol. 2005;16(1):70-84.

15. Deva P. Mental health and mental health care in Asia. World Psychiatry. 2002;8(2):118-120.

16. Simpson S. Restoring Life's Compass: Lesson's from forensic rehabilitation services about reducing criminalization an enhancing recovery of people with serious mental illness. Aust N Z J Psychiatry. 2006; 40 Suppl 1:A10.

17. Simpson AIF, Jones RM, Evans C, McKenna B. Outcome of Patients Rehabilitated Through a New Zealand Forensic Psychiatry Service: A 7.5 Year Retrospective Study. Behav Sci Law. 2006; 24:833-843.

18. Blumenthal JA, Burg MM, Braefoot J, Williams RB, Haney T, Zimet G. Social support, type A behaviour, and coronary artery disease. Psychosom Med. 1987;49:331-340.

**Corresponding Author:** *Chan Lai Fong, Lecturer & Psychiatrist, Department of Psychiatry, Universiti Kebangsaan Malaysia Medical Centre (UKMMC), 56000 Cheras, Kuala Lumpur, Malaysia.*

**Email:** laifchan@gmail.com

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