

Demographic and Clinical Correlates of Length of Stay in a Nigerian University Hospital Psychiatric Unit

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Abstract

Objective: To investigate the clinical and demographic correlates of prolonged hospital stays in a cohort of Nigerian psychiatric in-patients.

Methods: The investigation covered a 5 year period of psychiatric inpatient admissions at a Nigerian general hospital psychiatric and the records of 584 admitted and discharged patients that fulfilled the inclusion criteria were analyzed. Data were collected on demographic and clinical characteristics of the patients. Univariate and multivariate analyses were conducted to identify factors associated with length of hospital stay.

Results: Mean length of stay (LOS) was 25 ± 23 days. Only the clinical variables of a primary diagnosis of schizophrenia ($P=0.0001$), having received ECT ($P=0.0001$), and a history of previous hospitalization for psychiatric illness ($P=0.034$) significantly predicted prolonged LOS.

Conclusion: As cost considerations are very important in this time of evidence-based practice there is a need for clinicians to modify their practice and be aware of the patient-related variables that affect LOS when managing their clients.

Key Words: Length, psychiatric hospital stay, predictors, Nigeria

INTRODUCTION

Mental health advocates, policy makers, and researchers have continued to focus on the negative consequences of long-term hospitalization of psychiatric patients (Thompson et al., 2003). Prolonged in-patient admissions impact negatively on quality of life, and depletes health care resources (Gerber et al., 1998; Huntley et al., 1998). In this era of managed care in which a premium has been placed on time-limited treatment, both for inpatient and outpatient psychiatric units (especially in the western countries), effective psychotropic medication, with a focus on symptom stabilization can result in a reduction in average length of stay (LOS) (Mechanic et al., 1998; Hopko et al., 2001).

Nigeria is faced with the challenge of putting in place mental health services, particularly at the community level, unlike western countries where primary health

care psychiatry and general hospital psychiatry are fairly well developed. Most mentally ill patients in Nigeria are managed at the secondary/tertiary levels of care, and payment for services is on a cash and carry basis, as health insurance programs are neither well developed nor well structured. Community support in the form of transitional care is almost non-existent. Studies from Nigeria show that about 25% of adults that present at general health care settings suffer from significant psychological distress and that 10% of them meet ICD-10 criteria for a diagnosis of a psychiatric disorder (Gureje et al., 1995; Gureje, 2002).

Funding for the country's health sector is, however, poor, despite the country's oil wealth, with only a meager allocation from the government for mental health services.

With less than 10% of the mentally ill in Nigeria receiving any form of treatment (Gureje and Lasebikan,

Received: 19.05.2008 - Accepted: 30.06.2008

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2006) there is a need to be prudent in the use of scarce resources within this context of inadequate funding. Even though inpatient costs have been implicated in the use of about 80% of mental health resources in western countries (Johnstone and Zolse, 1999), research from sub-Saharan Africa, especially that which addresses demographic, clinical, and hospitalization variables that may be associated with service use in a setting of limited resource allocation, are inadequate.

As there is no doubt that the amount of time spent in hospital as an in-patient has financial, social, and quality of life implications, it is desirable to determine some of the correlates of prolonged psychiatric inpatient hospitalization in Nigeria. The present study aimed to collect data on some demographic and clinical variables associated with LOS in a Nigerian in-patient psychiatric unit for acutely ill clients.

MATERIALS and METHODS

The present study involved retrospective analysis of the records of inpatients admitted and discharged during a 5 year period (2001-2005).

Setting

Data were collected from the clinical records of patients discharged from the psychiatric department of the Obafemi Awolowo University Teaching Hospital, Ile-Ife, Nigeria. The hospital is a government funded public facility that provides tertiary medical service. The psychiatric department comprises 26 beds and treats acutely ill psychiatric patients. The decision to discharge a patient is usually made during consultant ward rounds and are guided by clinical condition; the decision to discharge is confirmed by the consultant psychiatrist. The unit provides psychiatric services to Osun, Ekiti, Ondo, and neighboring states in southwestern Nigeria, with a catchment population of about 10 million people (Nigerian National Population Commission, 1998). The unit is staffed by 5 consultants, 6 postgraduate psychiatry trainees, 1 clinical psychologist, 21 psychiatric nurses, and 2 social workers. Permission to review the patients' charts and records were obtained from the ethics and research committee of the institution.

Data Retrieval

The records included in study belonged to new patients or known psychiatric patients. We excluded the records of self-requested discharges, those that absconded from the ward, patients transferred from other hos-

pitals, and those that died. The records of 584 patients that were admitted 989 times during the 5-year period were eligible for inclusion in the study. We collected data on the following variables from each patient: Age, sex, level of education, marital status, and employment history. Employment was considered gainful if the patient earned an income prior to admission. Age was categorized as < 50 years and $\geq$ 50 years. We wanted to have a proportion of the middle aged and elderly in our sample for comparison purposes (i.e. those over 50 years).

The clinical variables included hospital discharge diagnoses (based on DSM-IV criteria), LOS, number of previous episodes of illness, number of previous admissions, presence/absence of co-morbid medical illness (i.e. physical illness discovered during routine physical examination/investigation) and if a patient was prescribed more than one antipsychotic drug (i.e. more than one major tranquilizer, recorded as antipsychotic polypharmacy for this study). Another clinical variable considered was electroconvulsive therapy (ECT) treatment. The decision to administer ECT was made the consultant psychiatrist, with major depressive disorder being the most common indication. Patients with manic illness whose manic behavior resulted in dangerous levels of exhaustion were also considered for ECT as well as acutely ill schizophrenic patients with catatonic or affective symptoms. If a patient had multiple admissions during the study period, the weighted number of days (i.e., total number of days in the period, divided by the total number of admissions) was used in the data analyses. The retrospective evaluation of case records was carried out by the senior psychiatric residents in the unit.

STATISTICAL ANALYSIS

Data were analyzed using SPSS v.11.0 for Windows (SPSS, Chicago, IL, USA).

Means, and standard deviations within the categorical variables were calculated. Within group differences were analyzed by independent samples t-test and one-way ANOVA. The level of significance was accepted as $P < 0.05$. The variables that were significantly/moderately associated with LOS (i.e. P values between 0.05 and 0.1) were entered into a logistic regression analysis to determine the predictors of LOS. The dependent variable was LOS as a dichotomous variable, with a score of 25 days or less indicating short LOS and more than 25 days indicating prolonged LOS. The number of days of admission was distributed fairly normally; therefore, the dichotomization was presumed to be valid for the anal-

Table I. Distribution of patients and LOS summaries according to sociodemographic categories.

Variables	Categories	n	%	Mean LOS/95% CI	SD	Statistic Df = 582
Gender	Male	294	50.3	23.7 (21.3-26.1)	20.7	t = 1.566
	Female	290	49.7	26.7 (23.8-29.5)	25.0	NS
Age group	< 50 years	535	92	25.5 (23.5-27.5)	23.5	t = 0.935
	≥ 50 yrs	49	8	22.2 (17.7-26.7)	15.2	Ns
Marital status	Married	211	36.1	23.0 (20.3-25.4)	18.6	t = 1.820
	Unmarried	373	63.9	26.5 (23.9-29.4)	25.0	P = 0.069
Education	Secondary and >	456	78.1	25.2 (23.2-27.1)	21.6	t = 0.054
	< Secondary	128	21.9	25.3 (20.6-30.0)	27.0	NS
Employment	Employed	296	51	23.5 (21.4-25.7)	18.6	t = 1.830
	Unemployed	287	49	27.0 (23.8-30.0)	26.5	P = 0.068
Total		584	100	25.2	23.0	20.0

ysis. Odds ratios (ORs) and 95% confidence intervals (95% CI) were calculated for the predictive variables.

RESULTS

During the period under review 647 patients were admitted into the unit. Twenty-six (4.1%) patients absconded, 13(2%) self-requested discharges, 17 (2.6%) patients transferred to other hospitals, and 7(1.1%) patients died; The records of these patients were excluded from the study. The records of 584 (90.2%) in-patients, therefore, were analyzed and are presented below. In all, 294 (50.3%) of the patients were male and 290 (49.7%) were females. The majority of the patients were unmarried (n=373, 63.9%) and younger than 50 years of age (n=535, 92%). Forty nine percent (n=287) of the patients were unemployed. Mean age of the patients was 31.8±10.7 years. Schizophrenia was the most common diagnosis (54.8%, n=320), followed by bipolar disorder (14.9%, n=87), depression (8.6%, n=50), mania (10%, n=58), and psychoactive substance use disorders and other categories (11.8%, n=69). For 41% (n=239) of the patients, this was their first episode of psychiatric illness. Mean LOS in the study population was 25.2 days. The mean number of previous episodes of illness was 1.27±1.63 (range: 1-11).

The 584 patients had a total of 989 admissions during the study period. Three hundred and fifty-seven patients (61 %) had 1 admission, 125 (21.4%) had 2 admissions, 62 (10.6%) were admitted 3 times, 21 (3.6%) patients had 4 admissions, and 19 patients (3.3%) had more than 5 admissions.

The average number of admissions for the patients during the study period was 1.69. Table I shows some of the sociodemographic characteristics of the patients. There were no statistically significant associations between LOS, and the demographic variables of gender, marital status, level of education, and age. There was, however, a trend for patients that were gainfully employed and those that were married to have a shorter LOS. Table II summarizes the relationship between LOS and the clinical parameters of the patients. Patients experiencing schizophrenia had the longest mean LOS (28.7±27.0 days), as compared to the other diagnostic categories combined (21±15.5 days) (P=0.001). Patients treated with ECT had longer LOS than those that did not receive ECT (51±40.8 days) vs. 22.2±17.5 days, P=0.001). Patients with comorbid physical illness also had longer LOS (30.3±34 days) vs. 24.4±20.7 days P=0.047). Taking more than one antipsychotic drug, and previous episodes of illness were not significantly associated with longer LOS.

CORRELATES OF PROLONGED HOSPITAL STAY

The patients were dichotomized into 2 groups on the basis of LOS≤ 25 days, considered a short stay and >25 days indicating a prolonged stay. Independent samples t-test and one-way ANOVA were used to examine within group differences (Tables I and II).

The results show that a schizophrenia diagnosis (P=0.001), ECT treatment (P=0.001), and a comorbid physical illness requiring treatment during the inpatient stay (P=0.047) significantly increased the likelihood of

Table II. Distribution of patients and length of stay summaries for clinical categories.

Variables Categories	N	%	Mean LOS&95% C.I.	Std.Deviation	Statistic
Diagnosis					
Schizophrenia	320	54.8	28.7(25.7-31.7)	20.7	F=4.67
Depression	50	8.6	21.4(17.8-25.0)	12.5	df=5.578
Mania	58	9.9	25.8(19.9-31.7)	12.5	P=0.001
Bipolar illness	87	14.9	20.4(17.8-23.1)	12.4	
Psychocative substance use	24	4.1	20.4(15.1-25.8)	12.7	
Others	45	7.7	15.0(11.3-18.7)	12.3	
Previous episodes of Illness					
Yes	345	59	25.2(23.0-27.2)	20.2	t=.004
No	239	41	25.2(21.8-28.5)	26.3	df=582
Previous admissions					
Yes	227	39	27.1(24.1-30.2)	23.2	t=1.651
No	357	61	23.9(21.6-26.2)	22.6	df=582
Electroconvulsive therapy					
Yes	61	10.4	51.0(40.5-61.4)	40.8	P=0.099
No	523	89.6	22.2(20.7-23.7)	17.5	t=10.064
Co-morbid physical condition					
Yes	79	14	30.3(22.6-38.0)	20.7	df=582
No	505	86	24.4(22.6-26.2)	24.2	t=1.992
Placed on more than one antipsychotic					
Yes	423	72	26.0(23.6-28.2)		p=.047
No	161	28	23.2(20.2-26.1)	19.0	t=1.303
Total	584	100	25.2	23.0	df=582
					p=.193

longer LOS. In addition, being single ($P=0.07$), previous inpatient admission ($P=0.099$), and unemployment tended to be associated with prolonged LOS ($P=0.07$).

When the significant variables and those moderately associated with LOS were entered into a logistic regression model to determine the predictors of LOS, ECT treatment, previous inpatient admission, and schizophrenia were the only variables that significantly predicted the likelihood of prolonged LOS (Tables III).

Treatment Outcome at Discharge

Using the criteria of McGlasham (1973), 123 (21%) patients markedly improved (i.e. had complete or almost complete remission of all symptoms), 374 (64%) moderately improved (1-2 non-disruptive symptoms), and for 87 (15%), had minimal improvement at the time of discharge.

DISCUSSION

The present study retrospectively analyzed inpatient admission records from a general hospital psychiatric unit in a developing country over a 5-year period (2001-2005);

the main focus was on LOS and its association with patient demographic and clinical variables. The majority of patients admitted were less than 50 years of age and just as likely to be male as female. For most of the patients this was their first admission into a psychiatric facility. Mean LOS was 25 days. Studies of other general hospital psychiatric units in Nigeria reported LOS of 21-30 days (Anumonye, 1975; Makanjuola, 1985; Ikwuagwu et al., 1994). The present finding that schizophrenia accounted for a majority of the psychiatric inpatient admissions (54.8%) is in agreement with previous reports from this region (Jegede and Adaranjo, 1976; Makanjuola, 1985). The significant association between having a primary diagnosis of schizophrenia having received ECT during admission, and increased LOS is also similar to previous reports (Oiesvold et al., 1999; Stevens et al., 2001). Although marital status and employment status were not significant in the multivariate analysis, there was a trend for those that were unmarried and those that were unemployed to have prolonged LOS ($P=0.07$). Being single may be an indicator of poor social support, thereby leading to some delay before discharge, since it is not the practice in our unit to discharge patients home on their own.

Table III. Predictor variables for Prolonged Length of Stay.

Variable	Odds Ratio (95% Confidence Interval)	P
Employment status	1.02 (0.67-1.54)	0.928
Marital status	1.10(0.72-1.70)	0.654
Number of Previous Admissions	0.67(0.46-0.97)	0.036
ECT Treatment	8.74(4.54-16.86)	0.000
Schizophrenia vs other diagnoses	1.99(1.37-2.92)	0.000

Those in formal employment also tended to have shorter LOS ($P=0.07$). This could be indicative of the possible influence of socio-economic factors, as a longer hospital stay would jeopardize the patient's employment; hence, he or she would be more eager to be discharged and this could have possibly influenced the attending psychiatrist. Based on the results of multivariate analysis, the most important predictors of increased LOS were ECT treatment, previous psychiatric admission, an a diagnosis of schizophrenia.

Even though our results are consistent with previous reports, our study focused primarily on patient-related variables related to LOS. Nonetheless, some studies suggest that treatment process variables may also affect LOS (Lyons et al. 1991). Hospitalization cost, used mainly on bed-days, varies widely at different hospitals. Hospital policies may also account for some variation in LOS, and this variation may be partly attributable to the practice patterns of individual psychiatrists (Huntley et al., 1998; Lyons et al., 1991).

Hospital policies also vary from country to country. For instance in western countries, especially the USA, cost considerations dictate LOS, whereas in South Korea and Japan psychiatric in-patient stays are longer because hospitals are reimbursed for LOS (Fujita et al., 1991).

The clinical implications of our study are that even though we do not have insurance companies pressuring on us to limit the duration of in-patient psychiatric ad-

missions due to cost considerations, it is important for clinicians to be aware of the factors that are likely to influence the duration of inpatient LOS. We need to implement management strategies that will reduce costs for patient/patients' families and the institution, especially in our setting of limited resource allocation. This study has some limitations. It was conducted at only 1 hospital that had only 26 beds to serve patients from at least 3 states. LOS could also have been affected by pressure on the attending consultant to discharge patients when the wards were full so as to make room for more acute cases. There are other variables that could have possibly influenced LOS of psychiatric inpatients that were not included in this paper. A multi-center prospective study in the future is likely to overcome these shortcomings.

CONCLUSION

We reported a number of demographic and clinical variables that affected psychiatric inpatient LOS in a general hospital psychiatric unit in a developing country, Nigeria. We do not have the equivalent of Medicare or a functional National Health Insurance plan pressuring service providers to place a premium on time-limited hospital admissions, and Nigerians still pay out-of-pocket for health services. Though managed care is not yet a reality in Nigeria, there is a need for Nigerian clinicians to be cognizant of the patient-related variables that affect LOS while planning psychiatric treatment and during its delivery.

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