Afr. J. Med. med. Sci. (2012) **41**, 147-152

Determinants of length of stay in the psychiatric wards of the University College Hospital, Ibadan, Nigeria

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Abstract

Background: Inpatient care constitutes the most expensive component of psychiatric services and pressure is increasingly being mounted on clinicians to discharge patients early. With the advent of managed care in Nigeria, psychiatrists as well as other physicians will be faced with the challenge of having to justify patient's length of hospital admission. This study was designed to examine the factors that influence the length of stay (LOS) in an acute psychiatric ward.

Methods: A list of all patients admitted to the psychiatric unit of the UCH for the twelve month period between June 1st 2006 and May 31st 2007 was compiled from the ward admission registers. Data were extracted from the patient's case notes using specially designed data record forms.

Results: There were a total of three hundred and seventy one (371) admissions made up of three hundred and thirty three (333) patients, out of which a total of 247 (74.5%) case notes were successfully reviewed. The most common diagnoses necessitating admission were schizophrenia and mood disorders. The mean LOS was 28.7 days and bed turnover for this period was 5.8. Factors found to be significantly associated with longer LOS include age, diagnosis, previous admissions and receiving electroconvulsive therapy with medication. These factors need to be considered in determining the period of hospitalization covered under managed care schemes.

Keywords: *Length of stay, psychiatric admission, psychiatric diagnosis*

Résumé

Contexte: Les soins d'hospitalisation constituent l'élément le plus coûteux des services psychiatriques et la pression est de plus en plus montée sur les cliniciens à donner tôt l'autorisation de sortie aux patients (malades). Avec l'avènement des soins gérés au Nigeria, les psychiatres ainsi que d'autres médecins seront confrontés au défi d'avoir à justifier la durée d'hospitalisation des patients. Cette étude a été conçue pour examiner les facteurs qui influencent la durée du séjour (LOS) dans un service psychiatrique spécialisé dans les soins urgents.

Méthodes: Une liste de tous les patients admis à l'unité psychiatrique du CHU pour une période de douze mois entre le 1er Juin 2006 et le 31 mai 2007 a été compilée à partir des registres d'admission des quartiers. Les données sont obtenues à partir des notes de cas du patient en faisant usage spécialement des formulaires conçus pour l'enregistrement des données.

Résultats: Il y avait un total de trois cent soixante-onze (371) admissions faites de trois cent trente-trois (333) patients, dont un total de 247 (74,5%) des notes de cas a été révisé avec succès. Les diagnostics les plus fréquents nécessitant l'admission étaient la schizophrénie et les troubles de l'humeur. La durée moyenne d'hospitalisation était de 28,7 jours et le chiffre d'affaires d'admis au lit pour cette période était de 5,8. Des facteurs significatifs sont associés à la durée d'hospitalisation y compris l'âge, le diagnostic, les admissions antérieures et bénéficiant d'une électro convulsivothérapie avec des médicaments.

Conclusion: Les facteurs tels que le diagnostic et les modalités de traitement qui prolongent la durée de séjour nécessitent une considération importante dans la détermination de la période d'hospitalisation couverte par les régimes de soins gérés.

Introduction

Over the last half century, the model for mental health care has changed from institutionalization of individuals with mental illness to the community care approach backed by the availability of beds in general hospitals for acute cases [1]. In Nigeria, primary mental health care is generally non-existent; most patients with mental health problems receive no care [2]. Mental health services are currently provided in stand-alone psychiatric hospitals and in the psychiatric units of general and teaching hospitals in different parts of the country, mostly owned by the Federal Government [3]. These units provide emergency psychiatric services, out-patient care as well as short term admission for acute cases.

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Inpatient care is the most expensive component of mental health care and accounts for most mental health expenditure [4, 5]. Length of stay (LOS) has often been used as an indicator of the efficiency of in-patient care; this is probably because it is one of the main sources of direct hospital cost [6]. Twenty eight days (or a range of 15-30 days) has been considered to be an adequate length of stay for psychiatric units of general hospitals [7, 8]. Investigators believe that only 50% of hospitalizations lasting longer than 30 days are medically justified, 10.3% is medically unacceptable and the remaining 39.7% are due to social and administrative factors beyond the psychiatrist's control [1].

There has been a lot of difficulty in trying to identify factors that can universally predict the required length of inpatient stay across psychiatric facilities. Factors that have been most consistently reported to predict LOS include age, gender, diagnosis, severity of symptoms, number of previous admissions, response to treatment, hospital admission rates and social factors such as marital status, living alone and carer stress [6, 9-15].

Payment for medical care for a majority of patients in Nigeria is largely out of pocket; with the rising cost of inpatient care, pressure is increasingly being mounted on clinicians to discharge patients early. Added on to this is the introduction of managed care through the National Health Insurance Scheme (NHIS). In the current NHIS guidelines, enrollees are generally entitled to hospitalization for a maximum of 15 days [16]. Hence, the control over how long a patient can stay on admission is increasingly being determined by these economic considerations rather than a physician's clinical judgment. There is a need for empirical data on the minimum length of hospital stay required for adequate treatment of different disorders to allow clinicians argue for a review of current NHIS recommendations on length of hospital admissions covered by Health Management Organizations (HMOs).

In addition to this, knowledge of the factors that can influence a patient's length of hospitalization will be relevant in helping clinicians contain cost and enable them to justify the length of time their patient's need to spend in inpatient care. This study was designed to provide information on the length of hospital admission for patients admitted to the psychiatric ward of a tertiary hospital and to determine what factors influence the length of hospital admission.

Materials and methods

This study is retrospective and descriptive in design. It was carried out in the Psychiatry Department of the University College Hospital, Ibadan. The University College Hospital is a tertiary/teaching hospital located in the capital of Oyo State, South-West Nigeria. The department of Psychiatry was established in the mid 1950s to provide outpatient psychiatric services. In patient facility was added in 1963 with a 9 bedded ward. At present, the department has a 64-bedded inpatient facility in the Neurosciences block of the hospital, with 32 beds each in two wards operated as separate wards for males and females. There are also outpatient clinics run twice weekly in the medical outpatient (MOP) department and a daily 24-hour emergency service. The UCH has no defined catchment area; referrals are received from other health care centres within Ibadan metropolis, as well as from other health care centres in Southwest Nigeria and other parts of the country.

The names and hospital number of patients admitted over a one year period between June 1st 2006 and May 31st 2007 was collated from the admission register kept by the nurses on each ward. The admission register is filled by the admitting nurse. The information routinely entered in the admission register include patient's name, hospital number, age, admitting diagnosis and the name of the unit consultant under which patient is admitted, and the date of discharge, filled on the day of discharge. An attempt was then made to retrieve the case notes of all the patients admitted within this period to obtain more detailed information.

Data were extracted from the patients' hospital records using specially designed data record forms. The data record forms excluded personal identifying data. The information extracted from the records included the patient's age, sex, marital status, level of education, occupation and ethnicity. Pertinent clinical data such as date of admission, date of discharge, diagnosis, number of previous admissions and episodes of illness, route of admission, treatment received, mode of discharge and patient's clinical state on discharge were also recorded. For patients who were admitted more than once during the study period, only the first admission was considered.
Patients are usually admitted to the ward, from three sources- (1) the outpatient clinic, (2) the emergency room or (3) by presenting directly to the wards. Psychiatric diagnosis was obtained from the patients records. The diagnoses were grouped into 4 categories to allow for meaningful analysis as the numbers were few for some diagnosis- (1) schizophrenic spectrum disorders included patients with a primary diagnosis of schizophrenia and schizoaffective disorder, (2) mood disorders for patients with depression or bipolar

disorder (3) acute psychotic disorder and (4) others which included patients with a diagnosis of organic psychotic disorder, dementia, anxiety and substance use disorders.

All data collected were coded, cleaned and analyzed using the Statistical Package for the Social Sciences version 11.0 (SPSS 11.0) [17]. Data were summarized using descriptive statistics. Student t-test and one-way analysis of variance were used to explore associations between mean length of stay and diagnosis/ other variables. Level of significance was set at 0.05, two-tailed.

Results

There were a total of three hundred and seventy one (371) consecutive admissions between June 1st 2006 and May 31st 2007, made up of three hundred and thirty three (333) patients. These included 174 females and 159 males. Thirty two patients were admitted two or more times during this period, a re-admission rate of 9.6%. The bed turn over for this period was 5.8.

Out of the 333 patients, the case notes of 248 were successfully retrieved and reviewed. One of these records was excluded from the analysis because the patient did not have a primary psychiatric diagnosis; leaving 247 (74.2%) records for the final analysis. Possible reasons for missing case records include misfiling of case notes in the records office and failure by ward staff to return case notes to the records office promptly following discharge from the hospital. However, the patients whose records could not be retrieved did not differ from those whose records were reviewed in terms of demographic and diagnostic profiles.

Table 1 shows the sociodemographic characteristics of patients. The mean age of the subjects was 34.7 years (SD= 12.07) and majority were single (52.8%). In terms of occupation, students constituted the largest proportion (26.2%), this was closely followed by the unemployed (21.8%). Most of the patients were educated beyond secondary school (56.9%). Less than 2% of respondents had no formal education. Most of the patients seen in the unit were of Yoruba ethnicity reflecting the

Table 1: Sociodemographic characteristics of patients admitted to the Psychiatric Unit of the UCH

Variable	Characteristics	Frequency (n)	Percentage (%)
Age	15-24	58	23.4
	25-34	79	32.3
	35-44	56	22.6
	45-54	36	14.5
	55-64	11	4.4
	>65	7	2.8
Gender	Male	120	48.6
	Female	127	51.4
Marital Status	Single	131	53.0
	Married	77	31.2
	Divorced/Separated	30	12.1
	Widowed	9	3.6
Occupation	Student	65	26.3
	Unemployed	54	21.9
	Unskilled labour	47	19.0
	Semi-skilled labour	34	13.8
	Skilled labour	36	14.6
	Professional	11	4.5
Level of education	None	6	2.4
	Primary	20	8.1
	Secondary	80	32.4
	Tertiary	141	57.1
Religion	Christianity	199	80.6
	Islam	48	19.4
Ethnicity	Yoruba	211	85.4
	Igbo	21	8.5
	Hausa	3	1.2
	Others	12	4.9

predominant ethnic group in southwest Nigeria where the hospital is located.

Patient's diagnosis by gender is shown on Table 2. Schizophrenia and related disorders were the commonest diagnosis necessitating admission. This group constituted 42.7% of cases. More females were admitted with a diagnosis of mood disorders than males.

Overall, the average length of stay was found to be 28.7 days (range of 1-161, SD=22.5). The median LOS was 23.5 days, with 57.8% of patients spending thirty days or less on admission. More than 40% of patients with schizophrenia spent more than thirty days in hospital. Most patients were treated with medications alone, while 24 patients (9.7%) had electroconvulsive therapy in addition to medications. There was no difference in mean LOS for males and females (Table 3). The factors that emerged as being significantly associated with increased mean LOS were age, number of previous admissions, diagnosis and receiving electroconvulsive therapy.

Discussion

The result of this study highlights findings documented in some earlier studies that patients with severe mental illnesses increasingly constitute the largest proportion of patients admitted to psychiatric units of

Table 2: Patients diagnosis by gender

Diagnosis	Male (n=120)n (%)	Female (n=127)n (%)	Total (N=247)n (%)
Schizophrenia spectrum disorders	51 (42.5)	55 (43.3)	106 (42.7)
Mood disorders	33 (27.5)	41 (32.3)	74 (29.8)
Acute psychotic disorders	24 (20.0)	21 (16.5)	45 (18.1)
Other diagnosis	12 (10.0)	10 (7.9)	22 (9.3)

Table 3: Comparison of Mean Length of Stay

Variable	Number of patients	Mean LOS Mean (SD)	t-test/ ANOVA	P value
Age				
< 39	170	26.6 (20.0)	3.817	0.025*
>40	77	33.5 (26.7)		
Gender				
Male	120	29.2 (23.9)	1.410	0.240
Female	127	28.4 (21.1)		
Previous episodes				
None	89	24.8 (20.9)	2.467	0.063
One	51	27.4 (18.9)		
Two	37	29.5 (22.1)		
Three or more	70	34.3 (26.0)		
Previous admissions				
None	114	25.0 (19.2)	3.774	0.024*
One	56	29.3 (21.4)		
Two or more	77	33.9 (26.7)		
Diagnosis				
Schizophrenic spectrum	106	36.0 (27.4)	12.187	0.000*
Mood disorders	74	26.2 (15.8)		
Acute psychotic disorder	45	18.2 (9.7)		
Others	22	24.0 (23.5)		
Treatment Modality				
Medication only	223	27.0 (20.7)	3.777	0.011*
Medication with ECT	24	44.8 (31.3)		

general and teaching hospitals [1, 5, 12, 18, 19]. Patients with a diagnosis of schizophrenia and mood disorders constituted more than two thirds of admissions during this one-year period. The re-admission rate of about 10% is also similar to what has been documented in earlier studies [13, 20, 21]. The mean length of stay of 28.7 days reported here is comparable to what obtains in psychiatric units of general hospital in other parts of the world; and remains within the range of 15-30 days suggested by some authors to be an adequate duration of admission to psychiatric units of general hospitals [7, 8]. However, this duration of hospital admission is longer than the 15 days covered under the current NHIS which means that about half of the cost of hospital admission will be borne by the Health Management Organizations (HMOs) for registered patients. Considering that in-patient care is the most expensive component of mental health services, even with patients registered under the NHIS, a large proportion of the cost of care will still be out-of-pocket, placing considerable financial burden on patient's family members and care givers.

It should also be expected that as NHIS coverage increases, clinician are going to be faced with increasing pressure and demands to discharge patients early. Shortened hospital stay often raises questions about quality of care; studies have shown that patients that were hospitalized for shorter stays were significantly more likely to return within 30 days after discharge when compared with those treated for longer periods [8, 22]. This is because short hospital stays may be associated with inadequate preparation for discharge and ineffective link to out-patient care [8, 20, 22]. However, the minimum length of hospital admission required for adequate treatment of different disorders is yet to be established.

Factors that were found to be significantly associated with increased length of stay in this study included age, diagnosis, number of previous admissions and receiving electroconvulsive therapy. In contrast to some previous studies there was no relationship to gender [4, 23]. Age due to its association with all vital events in a person's life has been described as a natural determinant of LOS [6].

Most authors report an association between LOS and diagnosis. Specifically most studies found that schizophrenia and the mood disorders were associated with longer hospital stays [4, 11]. The relatively high overall mean LOS observed in this study is most likely a reflection of the admission diagnosis of patients, schizophrenia and the mood disorders constitute the bulk of patients admitted to the unit. Hallack *et al* [1], in a 12 year study of admissions to a psychiatric unit of a general hospital in Brazil demonstrated an increase in the average LOS with increase in the percentage of patients admitted with the diagnosis of schizophrenia or affective disorders.

Number of previous admissions rather than the number of previous episodes significantly predicted LOS in this study. Admission for acute psychiatric care is an indicator of the severity of the patient's illness. Patients with milder forms of mental disorders can usually be effectively managed as outpatients. The use of ECT during hospitalization is also an indicator of the severity of the present episode of illness. ECT has been associated with longer hospital stays and could be a cause of complications [6, 15, 24].The present observations on previous admissions and electroconvulsive treatment is therefore likely due to their association with the severity of illness. It has been shown that patient's severity of symptoms influence LOS independently from diagnosis [14].

These findings need to be interpreted in the context of the limitations of this study. It is a retrospective record survey and subject to the limitations associated with such studies. Notably, data were extracted from patient's records and therefore the information is limited to what was available in the hospital case notes. Psychiatric diagnoses were those recorded in the patient's records and not based on any standardization criteria. Furthermore, there might be other confounding variables such as lack of accommodation and social support that could affect the LOS which were not assessed in this study.

Even though, the length of psychiatric admissions has been reducing over the years, psychiatric patients still require a relatively long duration of admission [4]. In addition to this, different disorders require varying length of admissions for effective treatment. This should be a major consideration in recommendations for length of hospitalization covered under managed care schemes rather than having a fixed number of days for all types of disorders. Future studies need to examine other factors that could influence LOS and determine the minimum effective LOS for different categories of patients.

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Received: 11/02/11
Accepted: 18/01/12