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LENGTH OF STAY ON ADMISSION AND CLINICAL OUTCOMES AMONG PATIENTS WITH MENTAL DISORDERS AT A TERTIARY HOSPITAL, IN NORTHWEST NIGERIA: AN EIGHT-YEAR RETROSPECTIVE STUDY

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Abstract

BACKGROUND: There is limited information available about the Length of Stay (LOS) on admissions among persons with mental disorders and the associated factors in our environment. Understanding these patterns could provide valuable insights into the efficiency and quality of inpatient care.

AIM: To the determine the length of Stay (LOS) and clinical outcomes among inpatients with mental disorders at Usmanu Danfodiyo University Teaching Hospital, Sokoto, Nigeria

MATERIALS AND METHODS: An eight-year retrospective study analyzed data from 434 patients admitted to the psychiatry ward of Usmanu Danfodiyo University Teaching Hospital, using SPSS software version 25 to analyze socio-demographic and clinical information, with statistical significance determined by Chi-squared and Fisher's exact tests at a 5% level of significance.

RESULTS: The mean length of stay was 15.8 days (SD ± 12.2). Approximately 52.6% of patients were hospitalized for less than two weeks. Notably, 85.8% of patients remained until discharge, and 31.1% of admissions were diagnosed with affective disorders. There was a statistically significant association between the length of stay (LOS) and the outcome among in patients admitted (P = 0.029).

CONCLUSION: Our study found an association between length of stay (LOS) and patient outcomes, emphasizing the importance of early psychiatric assessments for inpatients to reduce mortality and prolonged care. It also highlights the need to inform caregivers about expected admission durations.

Keywords: Length of Stay, Outcomes, mental disorders inpatients

INTRODUCTION

Mental health services in low-income countries are insufficient, unfairly distributed, and ineffective, with sub-Saharan Africa notably struggling due to inadequate infrastructure. The World Health Organization(WHO) reports that sub-Saharan Africa and Southeast Asia have the fewest psychiatric beds per capita, predominantly in overcrowded mental hospitals, resulting in inefficient utilization of scarce resources.[1] Inpatient care is the most costly aspect of psychiatric services, and with the introduction of relatives paying for mental care out of pocket in Nigeria, there is growing pressure on clinicians to expedite patient discharges, requiring psychiatrists and other physicians to face the challenges of justifying the duration of patients' hospital stays; this duration can serve as a measure of service efficiency and quality of care, as well as a basis for planning and allocating hospital resources.[2,4] Mental health practitioners strive to balance cost reduction and high-quality care by determining the optimal hospitalization duration for psychiatric patients, as extended stays increase financial strain on caregivers, isolate patients from their social circles, and can lead to maladaptive behaviors.[2,5,6] Informal caregivers frequently inquire about the anticipated duration of their clients' hospital admissions. The costs associated with in-patient care are typically borne out-of-pocket, necessitating contributions from family members. Thus, having an accurate estimate of the admission duration is crucial. In Nigeria, there have been reports on the lengths of stay and outcomes among patients with general medical and surgical conditions.[7,10] However, there is a paucity of research within the northern part of Nigeria to provide evidence-based answers to these queries.

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Consequently, this research tried to address this gap in knowledge. Therefore, this research aims to determine the length of stay on admission and clinical outcomes among patients with mental disorders at Usmanu Danfodiyo University Teaching Hospital, Sokoto, Nigeria.

METHOD

This study is part of an eight-year retrospective study conducted at the Usmanu Danfodiyo University Teaching Hospital, Sokoto (UDUTHS) which is a federal government-owned tertiary health institution established in 1983. It is an 862-bed facility spread over 19 wards (including comprehensive health centers in Kware and Argungu) serving the North-Western sub-region of the country as well as the neighboring Niger Republic. It has numerous departments and units, among which is the department of psychiatry, where the study was carried out. The study involved 437 patients, however, data from 434 participants were analyzed. Records of all admissions and discharges from the hospital's in-patient psychiatry ward between February 2015 and January 2023 were retrieved from the nurses' admission and discharge registers. The Department of Psychiatry has a limited number of bed spaces.

The socio-demographic details and clinical information such as the length of stay on admission were gathered. The data was analyzed using the Statistical Product and Service Solutions (formerly known as the Statistical Package for the Social Sciences) software for Windows, version 25. Chi-squared tests and Fisher's exact tests were used to test for associations, with statistical significance set at ($p<0.05$).

The data collection, entry, analysis of result and writeups lasted a period of about two months. The ethical approval was obtained from the ethics committee of University Teaching Hospital, Sokoto.

RESULTS

The sociodemographic and clinical features are outlined in Table 1. Among the 437 admission records identified and retrieved during the study period, 434 (99.3%) were examined. This sample size was deemed adequate to offer an understanding of the Length of Stay (LOS) within the study. The mean length of stay was 15.8 days (SD ± 12.2), among the 434 admissions analyzed, 51.8% were females. A significant majority (67.6%) of the patients fell within the age group of 20-40 years. The unemployed comprised 37.2% of the admitted patients during the study period. Furthermore, 31.1% of the admissions were diagnosed with affective disorder. Approximately 52.6% of the patients stayed for a duration of less than two weeks upon admission. Notably, the vast majority of patients remained until their discharge, constituting 85.8% of the total admissions.

Table 1: Showing Socio-demographic and clinical variables

Variable	Frequency (%
Mean age in years	30.3 (SD 11.4)
Age (years):	
<20	56(19.7)
20-40	192(67.6)
41-60	33(11.6)
>60	3(1.1)
Gender	
Male	212(48.5)
Female	225(51.8)
Occupation	
Employed	78(17.9)
Unemployed	162(37.2)
Business	42(9.2)
Student	153(35.2)
Diagnosis	
Schizophrenia	105(24.2)
Affective disorder	135(31.1)
Psychosis (unclassified)	41(9.4)
Organic brain disorder	16(3.7)
Substance use disorder	78(18.0)
Others	59(13.6)
Mean length of stay in days (SD	15.8(SD 12.2)
Duration of stay (weeks)	
<2	172(52.6)
2-10	154(47.1)
>10	1(0.3)
Outcome	
Planned discharge	295(85.8)
SAMA	35(10.2)
Death	4(1.2)
Transfer	10(2.9)

SAMA Signed against medical advice

Table 2 presents a comparison of the socio-demographic and clinical factors of patients in relation to their length of stay (LOS) during admission. The data indicate that patients who died during admission had a LOS of less than two weeks, whereas those discharged by the managing physician had a LOS between 2 and 10 weeks (P = 0.029). Additionally, patients aged 20 to 40 had a LOS of less than two weeks, though this association was not statistically significant.

Table 2: Comparison of socio-demographic and clinical variables with length of stay

Variable	Duration of admission (weeks)			X^2	df	p-value
	<2	2 -10	>10			
Age (years)				*		0.657
<20	46.7%	53.4%	0.0%			
20-40	53.4%	45.9%	0.7%			
41-60	55.2%	44.8%	0.0%			
>60	0.0%	100.0%	0.0%			
Gender				*		0.866
Male	52.2%	47.2%	0.0%			
Female	53.0%	47.0%	0.9%			
Occupation				*		0.345
Employed	41.8%	58.2%	0.0%			
Unemployed	55.0%	45.0%	0.0%			
Business	61.8%	38.2%	0.0%			
Student	52.1%	47.0%	0.9%			
Diagnosis				*		0.156
Schizophrenia	42.9%	57.1%	0.0%			
Affective disorder	51.9%	48.1%	0.0%			
Psychosis (unclassified)	49.2%	49.2%	1.6%			
Organic brain disorder	62.5%	27.3%	0.0%			
Substance use disorder	72.7%	35.9%	0.0%			
Others	64.1%	47.2%	0.0%			
Outcome				*		**0.029**
Discharge	49.2%	50.4%	0.4%			
SAMA	71.0%	29.0%	0.0%			
Death	100.0%	0.0%	0.0%			
Transfer	77.8%	22.2%	0.0%			

$p<0.05$. *Fisher's Exact

DISCUSSION

The average length of stay (LOS) reported in different studies varies across settings and countries. We reported an average LOS of 15.8 days, which falls within the range of LOS in high-income countries, averaging from 10.5 to 43 days,[11-14] This is lower than what Oladeji reported from the southwestern part of Nigeria in his research on length of stay (LOS) at the Department of Psychiatry at the University College Hospital, Ibadan, conducted over 12 months, where he found the average mean LOS to be 28.7 days.[4] Similar to Oladeji's study, Adegunloye conducted a comprehensive retrospective case-file analysis encompassing all admissions and discharges from the psychiatric inpatient ward of the University of Ilorin Teaching Hospital (UITH) in the

north-central region of Nigeria. This study spanned a five-year period and found that the average length of stay for patients was 23 days.[5] The difference may be explained by the duration of the data collection, as the index study reviewed 8 years, potentially providing a more accurate reflection of admission patterns compared to the 12-month period in Adegunloye and Oladeji's study.

Compared to findings from other parts of the African continent, this duration was shorter than that reported by Fikir Addisu and colleagues in their ten-year retrospective chart review of patients admitted to the psychiatric facility of Jimma University Specialized Hospital in southwest Ethiopia, where they found the median length of psychiatric admissions to be 22 days.[1] In a similar fashion, findings from Europe and Asia assessing characteristics of acute inpatient care at the Psychiatric State Hospital Regensburg in Germany and Hirakawa Hospital in Japan over a six-month period reported longer lengths of stay, with Germany averaging 28 days and Japan significantly longer at 75 days.[15] The variation in length of stay may be compounded by the limited bed capacity within the facility where the index study was conducted. This limitation could create pressures on the management team to discharge patients who have achieved stability in order to accommodate new admissions. Furthermore, the financial burden of hospitalization being predominantly out-of-pocket in Nigeria, unlike the subsidized or publicly funded systems in Europe and Asia, may also incentivize shorter hospital stays as patients and families seek to minimize costs.

The average length of stay of psychiatric inpatients in this study is longer than what was reported for patients admitted to the intensive care unit,[16-19] as well as among the first 32 patients diagnosed with COVID-19 in Nigeria, whose average length of stay was 12 days. The variation may be attributed to the comprehensive biopsychosocial management approach for mentally ill patients, whereas patients with social issues receive treatment once acute psychosis subsides. Additionally, in many settings, particularly in Africa, patients are temporarily admitted to the intensive care unit to stabilize before transitioning to general medical or surgical wards, thereby effectively reducing their stay in the intensive care unit.

We aimed to enhance previous studies by analyzing patient outcomes upon and length of hospital admission, specifically focusing on planned discharge, transfer, Signing against medical advice, or mortality. Notably, all instances of mortality occurred within the first thirteen days of admission. Similarly, most patients who were transferred to other physicians or who signed against medical advice did so within the first thirteen days of admission. This finding is consistent with Vladescu's report from Romania, which indicated that both acute and chronic cases admitted for continuous hospitalization experienced mortality within 3 to 11 days of admission.[20] Consistent with Fulga's findings, most cases resulted in mortality within the first week of hospital admission.[21] The pattern of mortality is similar to that of patients admitted to the medical intensive care unit, particularly among those with abnormal mental status upon admission, with Tesema and colleagues in Ethiopia, as well as several other studies, finding that patients with stays of less than four days were five times more likely to die compared to those with longer stays.[16,22] This period is critical for patients, as some are initiating new treatments, others need treatment adjustments, and some may be experiencing withdrawal symptoms from drugs or alcohol.[21] The observed mortality during this period of hospital stay may also be attributed to the fact that psychiatric symptoms can be the initial manifestation of an underlying general medical condition. Typically, comprehensive investigations, including brain imaging, are conducted within the first two weeks to establish a

definitive diagnosis. However, due to financial constraints, some caregivers may delay these critical investigations, potentially resulting in patient mortality during the diagnostic period before appropriate referrals can be made. Discharge against medical advice is broadly defined as any patient who insists on leaving against the advice of the managing team.[23] This is in contrasts to Nikkel and his coworkers who found that Patients who stayed in the hospital for 11-14 days after a hip fracture had a 32% higher chance of dying within 30 days after discharge compared to those who stayed only 1-5 days. This risk increased even more, to 103%, for patients whose hospital stays were longer than 14 days.[24]

We found that signing against medical advice did occur mostly within the first thirteen days of admission which was a similar finding by Ibrahim who reported that discharges against medical advice were correlated with a shorter duration of hospital stay.[25] However, the majority of patients who were treated and discharged following remission had a length of stay ranging from two to ten weeks, a result that was consistent with other findings.[5]

We did not find any significant relationship between other socio-demographic factors (such as age, gender, and occupational status) and the length of stay (LOS). This supports previous findings that the pattern of LOS may reflect the practice styles of psychiatrists, including choices related to drug dosage ranges, the use of Electroconvulsive Therapy (ECT), and the observation period before discharge after the resolution of acute symptoms, as well as hospital policies, such as higher turnover rates in hospitals with limited inpatient facilities.[5,26,27]

CONCLUSION

Our study has elucidated the importance of inpatient admission outcomes in determining the length of stay. It underscores the imperative for psychiatrists to conduct thorough assessments of patients admitted within the initial days to identify individuals requiring urgent referral and early intervention, thus mitigating early mortality rates and the need for prolonged care. Moreover, our findings enable us to offer psychoeducation and respond to inquiries from informal caregivers regarding the anticipated duration of their clients' admissions, facilitating more effective financial planning within our institutional environment.

RECOMMENDATIONS

Based on our study, we recommend that prior to hospitalization, clinicians should:

1. Conduct Thorough Initial Assessments: Identify high-risk patients early to provide urgent referrals and interventions, reducing early mortality and prolonged care.
2. Implement Early Interventions: Improve patient outcomes and shorten the length of stay by promptly addressing identified needs.
3. Provide Psychoeducation for Caregivers: Inform caregivers about expected admission durations to foster understanding and support.
4. Support Financial Planning: Help caregivers and the institution with effective financial planning by providing admission duration estimates.
5. Monitor and Update Practices: Continuously monitor patient outcomes and update assessment protocols to maintain high standards of care.
6. Psychiatric Care Decentralization: Bringing psychiatric care to the community and its integration into the primary health care services may lead to the creation of more awareness, early intervention and timely referral may ultimately reduce the length of hospital stay.

These steps aim to enhance patient care, improve outcomes, and ensure efficient resource use.

STRENGTH

This study is the first of its kind in the region, and therefore forms the bedrock for other researches in this subject.

LIMITATION

It is important to note that the results of this study may not be broadly applicable to mainstream psychiatric hospitals. In our facility, a department in a teaching hospital, patients with comorbid general medical conditions can be admitted to either the psychiatric ward or the medical ward. However, in a mainstream psychiatric hospital, such patients might have been referred to another hospital. Given that the study is retrospective and the study center continues to use traditional case filing methods, there is a potential risk of losing data pages.

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CONFLICT OF INTEREST

The authors declare no conflicts of interest.

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