Contributory Factors to Prolonged Hospital Stay After Discharge Among Surgical Patients in a Tertiary Hospital in North Central Nigeria

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ABSTRACT

Background:
Hospitalization of patients for treatment is an inherent aspect of surgical practice, after which patients are discharged when found fit to go home. There is, however, a group of patients who remain on the bed, even after being deemed fit for discharge. This study aimed to determine the number of days involved in prolonged hospital stay of surgical patients, and to identify the factors associated with such prolonged stay.

Methods: Surgical patients still on the bed more than 48 hours after being discharged, who consented to participate in the study, were recruited. Forty-eight hours was chosen as the benchmark, beyond which patients were considered to have had a prolonged stay after been deemed fit for discharge.

Results:
Three hundred and forty-one patients were recruited. The mean duration of stay after discharge was 17.6± 13 days. The speciality with the highest number of patients was Neurosurgery. Lack of finance and absence of a caregiver were the main causes of prolonged stay(96.5% and 3.5% respectively). The top three suggestions to reduce prolonged hospital stay (as proffered by patients) were bill waiver for indigent patients, reduced cost of health care services, and financial aid by philanthropists.

Conclusion:
Financial reasons and the absence of a caregiver were the major reasons for prolonged hospital stay in this study. Since finance was part of the major factor for hospital stay, a multi-sectorial approach to improve enrolment in the National Health Insurance Scheme is recommended. The provision of social support for patients in need of care post-discharge is also advocated.

INTRODUCTION

Hospitalization for surgical treatment is a normal part of surgical practice. Patients stay in the hospital for varying lengths of time, depending on the complexity of the case, surgical complications as well as

circumstances before, during, and after surgery.[1] Aside these factors, patients often stay longer than necessary in the hospital after being found fit for discharge. Prolonged hospital stay increases both the cost of treatment and susceptibility to nosocomial infections in tertiary care centres.[1,2] In Nigeria, most payments for healthcare services are made out-of-pocket which places a significant strain on the finances of patients and their families. The strain could be so severe as to drive some patients and their families into poverty. Prolonged hospital stay also results in economic loss to the hospital arising from sub-optimal use of bed spaces. Length of hospital stay (LOHS) is therefore an important marker of resource consumption in our tertiary hospitals[1,2] Ascertaining the determinants of increased LOHS and identifying potentially modifiable risk factors could directly influence intervention strategies aimed at cost reduction and improved healthcare delivery.[1] Many previous studies in this regard[2-5] addressed LOHS in association with patient conditions and complications of treatment. To our knowledge, this study is the first Nigerian study to examine increased LOHS of patients even after being deemed fit for discharge.

Materials and Methods

Ethical approval for this study was obtained from the institutional review board of the Jos University Teaching Hospital (JUTH/DCS/ADM/127/XXIX/1714). Written informed consent was obtained from all adult patients and parents/guardians of paediatric patients while assent was obtained from children aged 7 years and above. The study was conducted in a tertiary hospital located in North Central Nigeria, which has a large patronage of the surgical specialities, with 320 beds in the surgical wards. The patients were recruited from the surgical wards viz, male surgical, female surgical, paediatric surgical, orthopaedic, neurosurgical ward, urology, cardio-thoracic, oral/maxillofacial surgical, and the ophthalmological wards. We adopted a descriptive, cross-sectional design in conducting this study which lasted from August 2019 to May 2022.

The study population consisted of consenting surgical patients who stayed in hospital for more than 48 hours after being deemed fit for discharge. Prolonged hospital stay after discharge was defined as a situation where a patient still occupied the hospital bed for more than 48 hours, after been deemed fit for discharge. Our selection of 48 hours was an arbitrary cut-off in the absence of a predefined clinically acceptable value in the English literature.[1] The sample size of 341 patients was determined using the modification for Cochran formula for sample size calculation in smaller populations.[6] The inclusion criteria were being a consenting surgical patient still on bed after 48 hours of been discharged, irrespective of the type of surgery. Surgical patients being managed by several disciplines that discharge their patient on different days were excluded. If the patient was discharged by the specialities on the same day, they were still included in the study.

Nurses in the respective wards were notified of the study and they contacted the research team once a patient discharged from the ward met the inclusion criterion of still being on bed 48 hours after discharge. A member of the research team also visited the surgical wards once a day to check the admissions and discharge summary records to ensure that no patient was missed. The patients who met the inclusion criteria and consented to participate in the study were then recruited until the desired sample size was met.

Data were collected using an interviewer-administered questionnaire which included socio-demographic characteristics, surgical speciality, length of stay after discharge, reasons for prolonged stay, and patients' suggestions on ways to prevent prolonged stay after discharge. After the patients were interviewed, the outstanding amount owed (direct medical cost) by each patient such as cost of surgery, investigations and treatments were also obtained from the accounts department of the hospital. The data obtained were entered into SPSS version 22 and analyzed.Univariate analysis of the socio-demographic characteristics,

surgical speciality, and days on admission after discharge of the study participants were carried out and basic summary statistics produced for each variable. Quantitative variables were described using mean and standard deviation, while qualitative variables were presented as frequencies and tables.

RESULTS

The study population consisted of 341 patients --262 males and 79 females giving a M: F sex ratio of 3.3:1, with 26.1% being in the 31–40 years age range. Other information on age, sex and duration of hospital stay post-discharge are presented. (Table 1).

Table 1: Socio-demographic characteristics and duration of hospital stay after discharge

Variable	frequency (%)	mean ± SD
Sex		
Males	262 (76.8)	
Females	79 (23.2)	
Age group(years)		**32±14.7**
1-10	26 (7.6)	
11-20	67 (19.6)	
21- 30	80 (23.5)	
31-40	89 (26.1)	
41-50	37 (10.9)	
51-60	32 (9.4)	
61-70	6 (1.8)	
>70	4 (1.2)	
Educational level		
Primary	89 (26.1)	
Secondary	197 (57.8)	
Tertiary	14 (4.1)	
Uneducated	41 (12.0)	
Duration of hospital stay post discharge		**17.6 ± 13(days)**
3-7	82 (24.0)	
8-14	93 (27.3)	
15-21	65 (19.1)	
22-28	67 (19.1)	
29-35	16 (4.7)	
36-42 days	0 (0)	
Greater than 6 weeks	18 (5.3)	

Lack of finance was the commonest cause of prolonged hospital stay, accounting for 96.5% of the patients. (Table 2).

Table 2- Reason for prolonged hospital stay

Variable	frequency (%)
No care giver	12 (3.5)
Lack of finance	329 (96.5)
Total	341 (100)

The amount of money owed ranged from #31,000 to over #500,000, with 19.1 % of the patients owing between #200,000 and 250,000. (See table 3)

Table 3: Amount of money involved

Amount in Naira	frequency (%)
31,00-40,000	8 (2.3)
41,000-50,000	10 (2.9)
51,00-60,000	12 (3.5)
61,000-70,000	12 (3.5)
71,000 - 80,000	15 (4.4)
81,000- 90,000	11 (3.2)
101,000-150,000	56 (16.4)
151,000- 200,000	54 (15.8)
201,000-250,000	65 (19.1)
251,000- 300,000	36 (10.6)
301,000-350,000	26 (7.6)
401,000-450,000	10 (2.9)
>500,000	14 (4.1)
not applicable	12 (3.5)

The surgical speciality with the highest level of prolonged hospital stay was neurosurgery, followed by general surgery; urology had the least number of patients with prolonged hospital stay. Table 4).

Table 4: Prolonged-hospital-stay by specialty

Variable Specialty	frequency (%)
Neurosurgery	119 (34.9)
General surgery	72 (21.1)
Orthopaedics and Neurosurgery	26 (7.6)
Plastic surgery	26 (7.6)
Paediatric surgery	22 (6.5)
Orthopaedics	20 (5.9)
Cardiothoracic Unit	14 (4.1)
Orthopaedics + plastic	13 (3.8)
3 or more specialties	11 (3.2)
Oral and Maxillofacial surgery	8 (2.3)
Neurology + Ophthalmology	6 (1.8)
Urology	4 (1.2)
Total	341 (100)

When asked, the patients had some suggestions on how to reduce prolonged hospital stay. (Table 5).

Table 5: Patients' suggestions on how to avoid prolonged hospital stay

Suggestions	Frequency (%)
Bill waiver for indigent patients	96 (28.2)
Reduce cost of health care services	78 (22.9)
Financial aid by philanthropist	48 (14.1)
No idea	41 (12.0)
Free health care for children involved in accidents	29 (8.5)
Bill waiver for long stay patients	17 (5.0)
Bill waiver for severely injured patients	16 (4.7)
Free health care for the elderly	10 (2.9)
Give patients enough notice to source for funds before discharge	6 (1.8)
Total	341 (100)

DISCUSSION

This study examined the reasons for prolonged hospital stay after discharge among patients who were considered fit for discharge. The study population was made up of 341 patients. This study found that 27.3% of the patients stayed 1–2 weeks extra after discharge, followed by 38.2 % of the patients staying between 2–4 weeks on admission, and 5.3% staying up to 6 weeks on admission after discharge. This translates to long periods of bed occupancy by patients whose presence would prevent new admissions for the period when they occupied the bed. This leads to loss of revenue for the hospital as the patients no longer pay for occupying the beds. It gives the false impression of an increased hospital bed occupancy rate while reducing the extent to which the hospital would meet the health needs of the people in its catchment area. This view was also shared by other authors [7,8] who noted that reducing inappropriate hospital stay would reduce cost, improve hospital performance, reduce false bed occupancy rate, and increase hospital productivity. The current situation where patients occupied hospital beds without paying, for an average of 17.6 days after discharge is far from productive! The overall loss of income to the health care facility is enormous, considering the hospital daily charges NGN1,500 for bed space and nursing services excluding other miscellaneous service fees which vary based on the type of treatment, extent of injury, among other.

Prolonged hospital stay increases the risk for nosocomial infections especially among vulnerable groups-- the young and the elderly. Hassan et al[9], found that extending the length of hospital stay by one day increases the probability of acquiring an infection by 1.37 percent. With a mean duration of hospital stay after discharge of 17.6 days, the risk of infection is increased by 21.3 %. Lack of finance and absence of a caregiver (whose responsibility would be to look after the patient at home and bring to the hospital for follow up visits[10]) were the reasons for prolonged hospital stay after discharge. Of these, lack of finance was the overwhelming (96.5%) cause of prolonged hospital stay after discharge. This could be because most people still pay out of pocket for health care services in Nigeria. This finding is at variance with other studies. [11,12] Rosenfeld et al,[11] for example, found that the main reasons for prolonged hospital stay were unsuitability of the patient's home and reluctance of the family to accept the

patient, among others. Similarly, Towle et al[12] found that the reasons for prolonged hospital stay in 'medically fit' patients were waiting for a new caregiver, waiting for community hospital bed, and undecided on discharge disposition. The reasons for the variance between their studies and ours might be the fact that their studies were conducted in climes with effective and well-subscribed health insurance schemes. The fact that neurosurgery and general surgery with the most expensive investigations and treatments accounted for the longest LOHS with neurosurgery alone contributing about 35% cases, supports this position and corroborates previous studies within and outside Nigeria.[13,14]

The top three suggestions by patients on how to reduce prolonged hospital stay were bill waiver for indigent patients, reduced cost of health care services and financial aid by philanthropists. However, these suggestions may not be the way forward; the hospital needs to look into long-term sustainable ways to reduce prolonged hospital stay. The solution is more than what one hospital could manage. It would involve the collective efforts of the hospital administration, the Ministry of Health, and the Federal Government. The National health insurance scheme is a programme which, if properly implemented, could help overcome this problem. However, currently, only 3%[15] of Nigerians are covered by the health insurance scheme despite the extension of its selective coverage to universal coverage. A lot of work still needs to be done to improve awareness of health insurance amongst Nigerians. To make a meaningful impact, the solution will have to be multipronged-- involving the political, social, educational, and economic sectors, The poor insurance coverage is not peculiar to Nigeria alone but seen in most African countries. This is made worse by the fact that most African countries have a large informal sector that makes professional statuses and tax bases difficult to identify. Hence, the ability to fund the health insurance scheme is affected.[16]

Limitation of the study

This study was carried out in a single health care facility. A multicentre study with a larger population would be recommended to further support or refute the findings of this study.

Conclusion

The mean number of days patients remained in the hospital after discharge was 17.6 days. Financial reasons and absence of a caregiver were the major reasons for prolonged hospital stay after discharge with finances been the overarching factor. There is a need for a multi-sectorial approach to improve enrolment in the National Health Insurance Scheme and provide social support for patients in need of care post-discharge in order to reduce the adverse effects of prolonged hospital stay on hospitals and patients.

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