

The rate, reasons and predictors of hospital discharge against medical advice among inpatients of a tertiary health facility in North-central Nigeria

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Abstract: *Objective:* To determine the rate of hospital discharges against medical advice (DAMA), identify reasons for such discharges and identify factors predicting such discharges compared with controls. *Methods:* This is a retrospective health records review of all patients who discharged against medical advice and matched cases of those discharged normally between 2009 and 2011. Patients with DAMA were identified and relevant socio-demographic as well as clinical data were extracted from their clinical charts. We compared characteristics of case control patients using χ^2 and Wilcoxon Rank Sum test as appropriate. We used multivariate logistic regression to model the correlates of discharged against medical advice. We included in the analysis each characteristics that was significant ($p=0.05$) in bivariate comparison. We report odds ratio (ORs) and confidence intervals (CIs) from this model. *Results:* The prevalence of discharged against medical advice was 0.72% over the three year period. Patients who discharged against medical advice were younger, male gender and students. In addition they were predominantly Muslims and married with no form of formal education. Furthermore, residence in Bida where the hospital is situated and payment out of pocket is associated with DAMA. Most of these patients DAMA within the first five days of admission and signatories to the discharge were mostly parents, spouse, and other family members. Reasons for DAMA include financial constraints, improved health and desire to seek other treatments (faith/traditional based). The male gender, students and those without formal education all conferred increase odds of DAMA, while persons in age range 21-30 years, and married conferred protection against DAMA. Furthermore, individuals with normal delivery (SVD) (18), followed by RTA with minor injury such as bruises/laceration (14), and RTA with fracture (12) were much more likely to DAMA. *Conclusion:* Comparatively, DAMA rate at Federal Medical Centre, Bida is low. The factors associated with such DAMA include younger age, male sex and being a student. In addition, residing in Bida town and payments for healthcare out of pocket increase the likelihood of DAMA. We recommend formulation of explicit DAMA guidelines for the hospital and strengthening of the existing National Health Insurance Scheme as panacea for reduction in the rate of DAMA.

Keywords: Discharge against Medical Advice, Health Records Review, Predictive Factors, Reasons, Tertiary Hospital, Rate

1. Introduction

Patients have the right to discharge against medical advice

(DAMA) based on human rights and the 'Patients' charter (right to self-determination or autonomy), while the healthcare providers also have the right to do what they think is best for

the patient (to act with beneficence) [1]. This ethical problem is often a source of frustration for the medical personnel, who has to maintain a balance between the interests of the patient in preserving his/her autonomy and the interests of the state in maintaining life and adequate health [2].

Discharge against medical advice arises when a patient or his or her carer decides to leave the hospital before the treating physician recommends they do so [3]. Discharge against medical advice is of concern because it is assumed that these patients are leaving too soon and that adverse consequences may follow. Patients do these for a variety of reasons. In the study by Baptist *et al* [4] for instance, the reasons for DAMA were identified following a review of health records of asthma patients who left against medical advice and these included: dissatisfaction with care; patient was feeling better; and family obligations, while other studies [5-6] cited financial obligations and legal issues in addition to the above reasons.

Generally speaking, depending on the patient population and the type of treatment, the rate of DAMA has varied widely, ranging from 0.7% to 2.2% for general medical admissions, 6% to 54% for psychiatric admissions [7] and 0.9% for emergency admissions [8], and as such, care must be taken in its interpretation. For example, some chronic medical problems like diabetes, hypertension (which ordinarily, with best of treatments is only controlled), tend to require longer time of care than acute conditions like malaria. Whereas, patients tend to interpret a shorter length of stay as favourable outcome. The predictors of DAMA from previous studies include younger age, male sex, substance abuse disorders, lack of a personal physician and lack of health insurance [9]. Those with prior discharge against medical advice have been identified in previous studies [5, 10-12] as risk factors for discharge against medical advice. Regrettably however, disease severity have not been found as a predictor of this repulsive but permitted practice.

Discharge against medical advice may expose the patient to risk of an inadequately treated medical problem and results in the need for readmission and prolonged morbidity. In fact, a study [3] found about 32% of the patients was readmitted within 30 days, whereas only 12% of regular discharges led to readmission within 30 days. Furthermore, patients discharged against medical advice were more likely to have a subsequent admission for the same (or a related) diagnosis in the subsequent month (28% v. 8%) and to have longer stays in hospital for any readmission (median 5 v. 0 days) [7]. In addition, the healthcare provider-patient relationship may be strained in the event that the patient had to be readmitted. Understanding why patients choose to leave the hospital against medical advice has obvious importance because of the potential to identify those at higher risk and therefore intervene earlier to prevent excess morbidity, mortality, and reduce healthcare costs [3].

1.1. Aim of the study

This study attempted to determine the rate of hospital discharges against medical advice at Federal Medical Centre,

Bida, identify reasons for such discharges and identify factors predicting such discharges compared with controls.

2. Methods

2.1. Study Site

Federal Medical Centre, Bida is a tertiary health institution and a referral centre that provides specialty care in the fields of Medicine, Surgery, Psychiatry, and Obstetrics & Gynaecology among others.

2.2. Sample Selection

This is a retrospective review of health records of all patients who discharge against medical advice and matched cases of those discharged normally between 2009 and 2011 in the hospital. We defined patients as discharged against medical advice (DAMA) if they signed acceptable hospital clinical notes (e.g. progress notes) acknowledging that they were discharging themselves contrary to the advice of their physician as against those who absconded. Controls are cases that were discharged normally on the advice of the attending physician. We identified a total of 27,136 hospital discharges from 2009-2011. We excluded 2,128 patients who died in the hospital. Of the remaining 25,008 discharges, 179 (0.72%) of these patients accounted for discharged against medical advice. We selected 1.5% [13] of the remaining 24,829 hospital discharges at random to create a control group of 372 patients representing 372 discharges with physician approval. To prevent double counting, especially of those patients with multiple admissions, a single index discharge was selected at random for these patients. We chose the individual patient rather than the hospital discharge as the unit of analysis to determine those who are particularly vulnerable to be discharged against medical advice. Cases and controls were matched for their date of admission or the closest admissions possible.

2.3. Data Elements

A data extraction form (as designed by the authors) was used to collect patient information from the patient charts. The design ensured de-identification of the patients' health records and as such, no data element can be traced to any patient now or in future [14-15]. Data on age, gender, other demographic characteristics and chief diagnosis were extracted. In addition, the admission and discharge rate using standard classification criteria, the International Statistical Classification of Diseases and Related Health Problems 10th Revision (ICD-10), and code for the patient's principal discharge diagnosis were assigned by health information management (HIM) professionals among the authors, after chart abstraction. We aggregated continuous diagnosis codes in appropriate cases into higher order diagnoses.

2.4. Inclusion and Exclusion Criteria

For patients, who DAMA more than once during the study

period, only the first time DAMA was included. In addition, patients who received treatment but did not require admission were excluded. Patients who disappeared after registration were also not included. For the purpose of this study, admissions and discharge data covering departments/units such as ophthalmology, ENT, orthopaedic, and the neonatal intensive care, were added to that of their parent departments, i.e., Surgery and Paediatrics respectively.

2.5. Statistical Analysis

We compared characteristics of case control patients using χ^2 and Wilcoxon Rank Sum test as appropriate. We used multivariate logistic regression to model the correlates of discharged against medical advice. We included in the

analysis each characteristic that was significant ($p=0.05$) in bivariate comparison. We report odds ratio (ORs) and confidence intervals (CIs) from this model.

2.6. Ethics

The Hospital Research Ethics Committee of the hospital gave approval for the conduct of this study. This approval covers patients' consent as this consent was difficult to obtain from individual patient [16].

3. Results

The prevalence of discharged against medical advice was 0.72% over the three year (2009-2011) period.

Table 1. Selected patient characteristics of those discharged against medical advice

Patient characteristics	DAMA (n= 179)	Discharge with approval (n= 372)	χ^2	p-value
Age				
<10	36	142	37.27	0.000
11-20	32	61		
21-30	44	40		
31-40	33	48		
41-50	12	33		
51-60	13	13		
>60	9	35		
Sex				
Male	90	139	8.30	0.004
Female	89	233		
Occupation				
Civil service	17	42	46.91	0.000
Unemployed	33	46		
Farming	26	20		
Trading	14	46		
Driving	6	11		
Schooling	36	79		
Children	32	124		
Others	15	4		
Religion				
Christianity	33	103	5.57	0.018
Islam	146	269		
Marital status				
Married	99	158	8.70	0.003
Single	79	214		
Not indicated	1	0		
Educational level				
None	93	197	14.25	0.014
Completed primary	20	57		
Completed secondary	21	59		
Completed tertiary	19	38		
Qur'anic	6	4		
Others	20	17		
Place of residence				
Bida	75	166	10.94	0.012
Minna	13	20		
Other LGs* within Niger state	57	79		
Other states	34	107		

*LGs = Local Governments

Table 1 above reveals that compared to controls (patients discharged with physician's approval), most patients who discharged against medical advice were younger, male gender, unlettered Muslims, married and students. Furthermore, residence in Bida where the hospital is situated and payment

out of pocket is associated with DAMA.

Common principal diagnosis in DAMA patients include normal SVD (n = 18), RTA with minor injury (n = 14) and RTA with fracture (n = 12).

Table 2. Hospital stay and signatories to DAMA

Length of stay in hospital (in days)	Frequency (%)
1-5	87(48.6)
6-10	37(20.7)
11-15	23(12.8)
6-30	24(13.4)
>30	8(4.5)
Signatories to DAMA	
Spouse	45(25.1)
Children	11(6.1)
Parents	58(32.4)
Relations	33(18.4)
Friends	4(2.2)
Patient themselves	28(15.6)

Most of the DAMA patients (87, 48.6%) initiated their discharge within the first 5 days of admission and signatories to the discharge are mostly parents, spouse, and relations

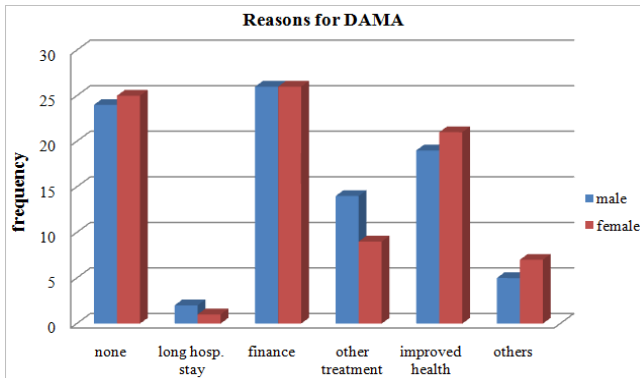


Fig 1. Reasons for DAMA

Reasons for DAMA include financial constraints (50, 27.9%), improved health (40, 22.3%) and desire to seek other treatments (faith/traditional based) (23, 12.8%).

Table 3. Multivariate analysis of DAMA cases at FMC Bida, 2009-2011

Variable	Odds Ratio (95% CI)
Age	0.82 (0.5-1.3)
Male gender	2.94 (0.6-13.9)
Occupation	1.22 (1.0-1.5)
Marital status	0.41 (0.1-1.7)
Education level	0.76 (0.2-2.8)
Place of residence	1.58 (1.1-2.4)
Duration of hospital stay before DAMA	1.07 (0.8-1.4)

The results of the multivariate analysis (Table 3) shows that male gender, students and those without formal education all conferred increase odds of DAMA, while persons in age range 21-30 years, and the married conferred protection against DAMA. Furthermore, individuals with SVD (Normal delivery – 18), followed by RTA with minor injury (bruises/laceration -14), and RTA with fracture – 12 were much more likely to DAMA.

4. Discussion

Patients have right to decide to leave hospital [1, 12], however this decision if taken against medical advice is not without consequences. The overall DAMA rate of 0.72% at FMC Bida, although higher, is comparable to the 0.34% reported by Duno et al [17], 0.57% reported by Moyse et al [18], but differs markedly from the range reported elsewhere in Africa (1.2%–12%) [19-20]. This may be explained by the similarity of the study population of this survey to that in the study by Duno et al [17] since both comprised general medical admissions excluding psychiatric and Accident and Emergency patients, or paediatric admissions who are known to have higher prevalence of DAMA [7]. By contrast, Alebiosu and Raimi [19], in a 2-year study of DAMA at a teaching hospital in South-western Nigeria, reported a DAMA rate of 2.8%, apparently due to their inclusion of accident and emergency patients, who accounted for 45.2% of all DAMA, in their study.

Patients who leave the hospital against physician orders have been reported to be at a higher risk of adverse health outcomes and have increased hospital readmission rates compared with patients who follow physician advice. The readmission rate among DAMA in this study was 3.9%. This is probably underestimated since only seven persons who felt that their health had not improved came back to our hospital within two weeks of DAMA. Other possible reasons for this low rate may include reasons for DAMA in the first place i.e. funding as most of the payments for treatment are out of pocket. The preponderance of male gender who DAMA is also consistent with similar studies in the country and elsewhere [6, 10, 13, 21-22]. The fact that up to 40 (22.3%) patients felt their condition had improved and saw no reason of staying longer in the hospital, probably suggest we might review our hospital discharge policy so that patients are not kept beyond necessary as patients achieve best healing where there is less disruption from their familiar environment. A closer look at the findings from our study revealed that majority of index cases were normal SVD, who were not primipara, and RTA patients who had minor/trivial injury. The finding that majority of DAMA left within the first five days on admission is consistent with similar studies from Nigeria [23].

We found that important correlates of DAMA were male gender, being a student and persons with no formal education. Financial constraints, improvement in health, and wanting to seek other treatments accounted for majority of DAMA patients. The prevailing harsh economic environment in Nigeria, and the limited coverage of the National Health Insurance Scheme (only formal sector with few localised community schemes), with its expected impact on individuals' healthcare financing, partly explains this [3, 6].

4.1. Study Limitations

This study had several limitations. As a single institutional study, its generalizability may be limited to similar hospitals. We also could not identify patient who DAMA and later were

readmitted to another hospital or patient who left our hospital with physician approval after DAMA elsewhere. Furthermore, our analysis is restricted to the patient chief diagnosis code and may have underestimated the number of patient with comorbid conditions as reported in earlier studies [24-25]. Unlike most studies that associate DAMA among those of unsound mind (psychiatric illnesses) [26], our series only had one such person whose primary diagnosis is schizophrenia. Perhaps their finding may not be unconnected to the setting of their study which is either emergency room setting or specific speciality compared with this study that looked at the hospital as a whole.

5. Conclusion

Comparatively, DAMA rate at Federal Medical Centre, Bida is low. The factors associated with such DAMA include younger age, male sex and being a student. Moreover, residing in Bida town and payments for healthcare out of pocket increase the likelihood of DAMA. We recommend that formulation of explicit DAMA guidelines and strengthening of the existing National Health Insurance Scheme as panacea for reduction in the rate of DAMA.

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