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Original Article

Rural background and low parental literacy associated with discharge against medical advice from a tertiary care government hospital in India

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ABSTRACT

Aims: To determine the proportion availing discharge against medical advice (DAMA) as well as reasons and socioeconomic factors associated it, stratified by gender.

Method: Prospective, semi-qualitative, descriptive study, conducted in a tertiary care teaching hospital in Northern India, after obtaining institutional ethical clearance. Included were patients aged 1 month to 12 years, who were DAMA and whose caregivers consented for interview. Preformed pilot tested questionnaire was administered by trained resident doctor on duty. Clinical and socioeconomic characteristics of the patient and reasons for DAMA were recorded using structured and semi-structured questions. Reasons were classified into subcategories – financial, perceived or informed low-probability of survival, dissatisfaction with hospital care and family commitments. Some of the caregivers reported more than one reason for DAMA.

Results: From August 2011 to November 2012 of 4394 admissions {66.6% males ($n = 2942$)}, 5.6% cases ($n = 245$) were DAMA of which 79 patients (64.5% males, 91.1% from rural area) were recruited. Decision for DAMA was taken within 48 h in 62.03% ($n = 49$) cases and by father in 73.4% cases ($n = 58$). Reasons for DAMA were financial in 28.18%, low-probability of survival in 41.82%, dissatisfaction with hospital care in 11.82% and family commitments in 18.18%. Risk factors for taking female patient DAMA were parental illiteracy or education below fifth standard (Maternal: OR = 5.83; 95% CI: 1.57–21.86; $p = 0.01$ Paternal: OR = 2.78; 95% CI: 0.97–8.02, $p = 0.05$), and joint family structure (OR = 4.78; 95% CI, 1.57–14.54, $p = 0.01$). Decision for availing DAMA was statistically significantly associated with the interest of male as compared to female patients (OR = 4.088; 95% CI, 1.344–12.438).

Conclusion: Since 1 in 20 patients avail DAMA and since those of rural background and of parents with low educational status are at risk for it, hence counseling of care providers and parents for completion of treatment should begin early in hospitalization.

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1. Introduction

Patients who leave the hospital before completing diagnostic and therapeutic procedures and against physician's advice or certification of discharge are referred as discharge against medical advice (DAMA). DAMA, also sometimes called Leave against medical advice or self-discharge has been observed frequently in pediatric patients in tertiary care centers and has significant impact on health care delivery and patient outcome.¹ DAMA is of big concern and a challenge for individuals in the health care field.² In settings like India where there is almost no health insurance, it is noticed that the parents, after initially admitting their sick children, request for DAMA, which results in loss of resources from the patient's as well as hospital's perspective and also potentially deprives some other patient from receiving hospital care.

Various reasons have been reported for requesting for DAMA for hospitalized patient from different countries and hospitals, largely situated in the African continent.^{3–9} Some of these are cost of treatment, critically ill condition of the patients with almost no hopes for survival, dissatisfaction with the treatment provided by the hospital, competing family responsibilities.^{3–9} It is pertinent to note that none of the studies have reported DAMA in the interest of the patient.

The cultural scenario of India tends to differ from that seen in other countries. There is a dearth of literature on reasons for availing DAMA in sick, hospitalized children here. Hence, the primary objective of this study was to assess the proportion of guardians of children availing DAMA over 15-month duration by various categories of diseases. The secondary objectives were to compare demographic and social profile as well as reasons for DAMA and factors associated with its decision, by gender and to assess if there was a correlation between reasons for DAMA with clinical status of patient, as adjudged by the modified Glasgow Coma scale.^{10,11}

2. Materials and methods

This was a prospective descriptive study conducted from August 2011 to November 2012 in the Pediatric Department, King George's Medical University (KGMU), Lucknow, after obtaining institutional ethical clearance. KGMU is a tertiary care referral, teaching hospital having 180 bedded pediatric wards with intensive care facilities. Study included patients aged 1 month to 12 years, who were DAMA and whose caregivers consented for interview. Excluded were those whose caregivers were unavailable at the time of DAMA or not consenting for interview.

Interviews were conducted by the pediatric resident doctor on duty at the time the caregivers communicated the decision to go DAMA. As the first step, the resident doctor on duty or the consultant, if available, had a one to one discussion with the family members with aim to solve any hospital related problems, or respond to disease related queries and counsel them to change their decision to avail DAMA. However, if the family was firm on their decision to avail DAMA, then the resident doctor on duty administered the project questionnaire. All pediatric residents were trained to conduct interview

in uniform manner by principal investigator (SA). Preformed pilot tested questionnaire containing semi-structured as well as structured questions were asked for reasons behind DAMA.

For those availing DAMA, the final diagnosis was abstracted from the hospital records. Diagnoses of different diseases were categorized into specific category according to major body system affected. Questionnaire also included age, gender, duration of disease, duration of hospital stay, time taken to decide for DAMA, socioeconomic status of family.

Reasons were classified into subcategories – financial, perceived or informed low-probability of survival, dissatisfaction with hospital care and family commitments. Some of the caregivers reported more than one reason for DAMA.⁹ Under family commitment subcategory of reasons, we included responses pertaining to care of other children at home or any other family member needing attention or going to family function/festival and the like. Severity of illness was assessed by Modified Glasgow coma scale (GCS) and was classified as terminal if the Modified GCS was <7.¹¹

Data was entered into Microsoft excel sheet and finally analyzed by EPI Info software 7. To assess univariate association, chi square test was used for categorical variable and student's t test for continuous variables. A 2-tailed distribution was used and a *p* value of <0.05 was taken as statistically significant.

3. Results

During study period of August 2011 to November 2012 there were 4394 admissions [2942 males (66.6%) and 1452 females (33.04%)], out of which 245 patients (5.6%) were DAMA. Similar proportions of male as well as female patients were DAMA (159 males (5.4%) versus and 86 females (5.9%)). Out of the 245 who were DAMA caregivers of 79 (32.25%) patients (51 males and 28 females) consented for interview were recruited in study.

Mean age of male versus female patients was 45.48 months (± 47.64) versus 63.16 months (± 49.02) (*p* value = 0.12). Mean duration of hospitalization prior to availing DAMA was 3.18 days (± 2.95) in male and 3.46 days (± 2.87) in females (*p* value = 0.67). Majority of patients (*n* = 49, 62.03%) availed DAMA within first 48 h of admission (Fig. 1). At the time of availing DAMA the mean GCS score of male patients was 7.18 (± 3.88) as compared to 7.89 (± 3.78) in female patients (*p* value = 0.67).

Broad category of diseases of all admitted patients, those availing DAMA and those recruited in this study are shown in Table 1. Higher proportion of patients with growth and nutritional disorders as well as infections availed DAMA as compared to other categories. Across all categories approximately one-third of those availing DAMA consented for interview.

Table 2 describes certain socioeconomic characteristic of patients availing DAMA as well as compares these between male and female patients. We also report the risk of a female patient availing DAMA. Most of the patients' belonged to rural area (91.1%). Risk factors for caregivers availing DAMA for a female were maternal illiteracy or less than 5 years of formal

Fig. 1 – Frequency distribution showing number of days of hospital stay prior to availing discharge against medical advise.

education, father being an unskilled worker or on daily wages or a farmer, and joint family status. Paternal illiteracy or less than 5 years of formal education also had tendency for association between availing DAMA for a female patient. There was no seasonal variation over the rate of DAMA (data not shown).

The decision maker for availing DAMA as well as factors associated with it are given in Table 3 and compared across gender. Majority of times (73.4%), father was decision maker for availing DAMA. Most of the respondents reported that the decision for availing DAMA was taken in favor of family (63.3%). However, decision for availing DAMA was statistically significantly associated with the interest of male as compared to female patients (OR = 4.088; 95% CI, 1.344–12.438). Respondents

said that most of the patients would be taken home after availing DAMA (67.1%). However, male patients were reportedly more likely to be possibly taken to another hospital when compared to female patients (OR = 3.220; 95% CI, 1.054–9.833). The time taken to decide for DAMA was <6 h in 49.3% cases, and there were a statistically significantly higher proportion of female patients.

Table 4 reasons were classified into subcategories – financial, perceived or informed low probability of survival, dissatisfaction with hospital care and family commitments. Financial reason was statistically significant in case of female child to be DAMA. Low-probability of survival or perceived terminal illness was the reason in majority (41.82%). Other reasons were seeking dissatisfaction with hospital care in 11.82% and family commitments in 18.18%.

Table 1 – Number of admissions, availing discharge against medical advise and those recruited by broad category of diagnosis.

Broad category of diagnosis	# Admitted (n = 4394)	# DAMA (n = 245)	# Recruited (n = 79)
CNS disorders	1692 (38.5%)	96 (5.7%)	32 (33.3%)
CVS disorders	280 (6.4%)	15 (5.4%)	6 (40%)
GI disorder	512 (11.7%)	24 (5.4%)	7 (46.9%)
Renal disorder	300 (6.8%)	16 (4.7%)	6 (37.5%)
Respiratory disorders	624 (14.2%)	28 (4.5%)	8 (28.6%)
Hemato-oncological disorders	640 (14.6%)	24 (3.8%)	8 (33.3%)
Infections	256 (5.8%)	30 (11.7%)	8 (26.7%)
Growth and nutrition problems	90 (2.0%)	12 (13.3%)	4 (33.3%)

Abbreviations: CNS: Central nervous system, CVS: Cardio-vascular system; GI: Gastrointestinal.

4. Discussion

In our tertiary care pediatric center in Lucknow, India, out of 4394 admissions, 5.6% availed DAMA and this was similar among male as well as female patients. Most often the decision to avail DAMA was taken by the father. The risk factors for availing DAMA for a female patient were illiteracy or low education status of the mother, father being an unskilled worker or daily wage or a farmer as well as living in a joint family. In a higher proportion of male patients DAMA was availed when the child was perceived to be terminally ill. Also families of male patients reported that they were contemplating hospitalization in another center.

There is a gender bias against care seeking for female children in India.¹² This is evident by the fact that 66.6% of total admissions in the study period here were males. Yet we have found that after making the decision of hospitalize a

Table 2 – Certain socioeconomic characteristics of patients who availed discharge against medical advice and risk factors for it by gender.

	Total (n = 79)	Males (n = 51)	Females (n = 28)	Odd's ratio 95% CI	p value
Place of residence					
Rural	72 (91.1%)	46 (90.1%)	26 (92.8%)	1.413 (0.255–7.804)	0.691
Educational status of father					
Illiterate or <Class V	51 (64.6%)	29 (56.9%)	22 (78.6%)	2.782 (0.964–8.023)	0.052
Educational status of mother					
Illiterate or <Class V	55 (69.6%)	30 (58.8%)	25 (89.3%)	5.833 (1.556–21.859)	0.004
Employment of father					
Unskilled worker or daily wager or farmer	64 (81.1%)	38 (74.51%)	26 (92.85%)	4.447 (0.93–21.378)	0.046
Type of family					
Joint	48 (60.7%)	25 (49.1%)	23 (82.1%)	4.784 (1.573–14.546)	0.004

child, parents of similar proportion of male as well as female patients avail DAMA. This is unlike a report from Nigeria where it was found that parents of female patients were more likely to avail DAMA.⁴ In our study 62% were DAMA within first 48 h of admission, unlike another report from Africa⁴ where only 35.1% patients were DAMA within first 48 h. Appropriate management is initiated immediately after admission and hence within the first few days major resource consumption occurs for each patient. This includes the out of pocket expenditure borne by the families as there is almost no health insurance in India.¹³ Hence availing DAMA after 48 h of admission does result in major resource wastage from the hospital, societal as well as care providers' perspective.

Most families availing subsidized tertiary care from the government sector hospital in India, like the study center, are poor. This is evident by the educational and employment status of the families interviewed by us. Exact monthly or annual income could not be determined because most of the primary caregivers (81.1%) were either farmer or daily wage where there is no regular source of income. Majority of patients who were DAMA belonged to rural background (91.1%) and similar findings have been reported from Africa.⁴

Reasons were classified into subcategories – financial, perceived or informed low probability of survival, dissatisfaction

with hospital care and family commitments. Reasons for DAMA were grouped into three broad category, namely, financial, terminal illness and family commitments in an earlier study but it was not appropriate to get real picture in our scenario.⁹ A larger proportion of females (37.84%) patients were DAMA as compared to males (23.29%) due to financial reasons. This can be taken as an extension of the societal behavior for spending less for sickness in female child.¹² Likewise, a higher proportion of care providers of male terminally sick patients were DAMA, as they probably planned to spend money availing care in a higher/paid center.

In this study only about one-thirds of those availing DAMA could be interviewed. Interviewing a family after they had decided to avail DAMA was not easy as most of them wanted to leave the hospital immediately. Since this was a semi-qualitative study, hence this is unlikely to effect the generalizability of our findings in similar settings in India.

We conclude that 1 in 20 pediatric admissions avail DAMA, which can be prevented. Rural families as well as those with low parental education are more likely to avail DAMA, especially for a female patient. Hence with the first 2 days of hospitalization efforts must be made to prevent DAMA by providing family support and counseling. There is also a need

Table 3 – Factors associated with decision avail discharge against medical advice by gender.

	Total patient	Males	Females	Or 95% CI	p-value
Primary decision maker for DAMA					
Father	58 (73.4%)	38 (74.5%)	20 (71.4%)	0.853 (0.304–2.404)	0.766
Mother	8 (10.1%)	6 (11.7%)	2 (7.14%)		0.51
Other family member	13 (16.4%)	7 (13.7%)	6 (21.4%)		0.37
Decision in whose interest					
Patient	29 (36.7%)	24 (47.1%)	5 (17.6%)	4.088 (1.344–12.438)	0.010
Family	50 (63.3%)	27 (52.9%)	23 (82.14%)		
Destination after going DAMA					
Home	53 (67.1%)	30 (58.8%)	23 (82.1%)		
Another Hospital	26 (32.9%)	21 (41.2%)	5 (17.9%)	3.220 (1.054–9.833)	0.034
Time taken to decide for DAMA					
<6 h	39 (49.3%)	21 (41.1%)	18 (64.3%)	0.388 (0.149–1.008)	0.049

Table 4 – Reasons for availing discharge against medical advice at the time of decision-making.

Reasons for LAMA	For total patients N = 110	For male patients N = 73	For female patients N = 37	p value
Treatment not affordable	31 (28.18%)	17 (23.29%)	14 (37.84%)	0.02
No hopes for child to survive	46 (41.82%)	32 (43.84%)	14 (37.84%)	0.54
Not satisfied with hospital treatment	17 (11.82%)	12 (16.44%)	5 (13.51%)	0.68
Family commitments	16 (18.18%)	12 (16.44%)	4 (12.29%)	0.42
N = Total number of reasons given by family members.				

to provide financial support over and above subsidized care to prevent DAMA.

Contributions

SA responsible for conceptualization, designing, data collection, analysis and manuscript writing. NP responsible for data collection, analysis and manuscript writing.

Conflicts of interest

All authors have none to declare.

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