

# Factors Influencing Patients to Decide to Discharge Themselves against Medical Advice at Tertiary Hospitals: A Cross-Sectional Study

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## Abstract

**Background:** Discharged against medical advice (DAMA) is defined as any instance when a patient wants to leave the hospital against the managing physician's decision. This study aimed to identify factors that influence patients to decide to be DAMA. **Methods:** A descriptive, cross-sectional study. The study was conducted in the emergency department (ED) of King Fahad Medical City (KFMC)-Saudi Arabia-Riyadh city. A questionnaire in both Arabic and English was distributed to all participants to fill in either English or Arabic. **Results:** Between 1 March and 30 April 2021, 510 responses were collected. Most of the study participants (31.4%) were over the age of 54. Our findings showed that 12.5% of our participants had taken discharge against medical advice in the past. **Results Regarding Factors That Influence Patients to Decide on DAMA Showed:** Regarding Inappropriate behavior and disrespect of the physician or staff to the patient and his relatives, 262 (51.4%) participants, 85 (16.7%) participants, and 163 (32%) participants agreed, neutral, and disagreed, respectively. Regarding the Lack of physicians' and nurses' attention to the patient and his relatives (emotionally), our result showed that 278 (54.5%) participants, 95 (18.6%) participants, and 137 (26.9%) participants agreed, neutral, and disagree, respectively. Regarding failure to inform the patient or his relatives of his condition, it showed that 257 (50.4%) participants, 95 (18.6%) participants, and 158 (31%) participants agreed, neutral, and disagreed, respectively. Regarding feeling better from DAMA, our result showed 226 (44.3%) participants, 119 (23.3%) participants, and 165 (32.4%) participants agreed, neutral, and disagreed, respectively. Regarding patients' or their relative's tiredness of hospital stay, the result showed that 166 (32.5%)

participants, 104 (20.4%) participants, and 240 (47.1%) participants agreed, neutral, and disagreed, respectively. **Conclusion:** The long wait time to be seen by a physician was the major factor that forced patients to leave the emergency department against medical advice.

## Keywords

Against Medical Advice, DAMA, Discharge, Factor, Saudi Arabia

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## 1. Background

Discharge against medical advice (DAMA) is defined as any instance when a patient wants to leave the hospital against the managing physician's decision [1]. The release may be initiated by the patient, their relatives in an adult patient with competence problems, or by the parents in a child's case. DAMA is a concern for physicians because it disrupts their interactions with the patient and leads to frustration [2]. DAMA has also been associated with adverse health outcomes and increased healthcare costs [3].

Literature review showed patients' reasons for leaving against medical advice include family obligations and financial responsibility. Long waiting times and crowding in the emergency department (ED) are also linked to leaving without being seen by a medical provider, rather than going against medical advice [4].

DAMA is of great concern to many hospital managers and has a wide range of prevalence in the United States. Some studies claim a prevalence of 1% - 2% among general hospital admissions, though in one study from Spain, which included general hospital admissions, the prevalence rate was 0.34% [1] [5].

According to the American College of Emergency Physicians and others, AMA discharges are high-risk situations that can result in malpractice lawsuits. They highly advise that all AMA discharges be carefully documented in the ED chart; every chart should show that the patient knows his or her diagnosis, treatment options, alternative therapies, and the potential repercussions of not following the suggested course of action. Furthermore, the chart should state that no patient should be signed out unless they are deemed competent. After departure from the ED, each patient should receive an equal chance for proper medical follow-up [6].

Predictors of DAMA, such as younger age, male sex, substance abuse, psychological disorders, and a lack of health insurance have been reported in the literature [7]. DAMA exposes the patient to the risk of an insufficiently treated medical problem, which could very easily lead to re-admission and extended morbidity—something that could happen in the next few days to weeks—and it may lead to a longer length of hospital stay for any readmission [6] [8].

Choi *et al.* suggested that DAMA patients be closely monitored via telephone consultations or by a primary physician or nurse's visit to check their condition, preferably within one week of DAMA. Such approaches can potentially have a

big influence on improving patient outcomes, especially in low-income areas. These findings underline the need for more effective healthcare policies that cover the continuum of care after discharge [9].

A study conducted in Saudi Arabia discovered a significant association between age and DAMA. DAMA was more likely to occur among younger patients; this is consistent with the findings of other studies. A study at Princess Nourah Bint Abdulrahman University assessing the demographic factors of DAMA from the ED was the first of its kind conducted in Saudi Arabia [10]. The researchers recommended conducting further studies to investigate the risk factors for DAMA. The present study aimed to determine the most common factors that influence patients to decide on DAMA at a large referral tertiary hospital operated by the Ministry of Health in Riyadh.

## 2. Methods

### 2.1. Study Design/Setting

It is a descriptive, cross-sectional study, and self-administered questionnaire in both Arabic and English. The questionnaire was distributed to all participants to fill in either English or Arabic but not in both.

The study aims to know and study the factors that lead patients to be DAMA.

The study was conducted in the emergency department (ED) of King Fahad Medical City (KFMC). KFMC is a 1200-bed tertiary medical center in Riyadh and one of the largest referral medical centers in Saudi Arabia. Study duration from 1st March to 30 April 2021.

### 2.2. Inclusion and Exclusion Criteria

#### *Inclusion criteria:*

- 1) All patients who attended our ED during the study period.
- 2) Patient who was 18 years old and above.
- 3) Patients who were mentally healthy.

#### *Exclusion criteria:*

- 1) Patients less than 18 years old.
- 2) Patients with abnormal mental health status.
- 3) Patients who had acute psychosis were intoxicated and critically ill.
- 4) Incomplete data.

### 2.3. Questionnaire Development

Previous studies were reviewed to determine the most common factors influencing patients to decide on DAMA [9]. Our questionnaire was modified to fit the study's aim. The questionnaire consisted of 21 questions that were classified into two main sections. The first section consisted of sociodemographic characteristics, such as age, gender, marital status, residential area, number of children (if any), educational level and background, where the patient typically seeks medical treatment, and level of health insurance (if any). The second section eva-

luated the factors that influence patients to decide on DAMA.

A pilot study was carried out among ten patients at KFMC to ensure good reliability; Cronbach's alpha was 0.735, indicating the good reliability of our tool, and no substantive changes were made to the questionnaire after the pilot study. The factors' influence domain was assessed using a Likert scale (agree, neutral, and disagree).

## 2.4. Data Collection

Four volunteers had access to the hospital questionnaire for patients who wanted to discharge themselves or their relative against medical advice and collected the data; all the volunteers had a medical background (e.g., they were students or graduate students in medical sciences). The questionnaire was administered electronically using Google Forms.

## 2.5. Sample Size

The sample size was calculated using Raosoft sample size calculator soft word [11]. We used the universally acceptable confidence interval (CI) of 95%, with a standard deviation (SD) of 0.5 and a margin of error of 5%.

## 2.6. Statistical Analysis

Data analysis was performed using SPSS 25.0 software (SPSS Inc., Chicago, IL, USA). We used a descriptive-frequency test and the Chi-square test to determine the intensity of the correlation among independent variables (age, gender, educational level, and marital status) and the factors that influence patients.

## 3. Result

The study was conducted from 1 March to 30 April 2021 at KFMC-Riyadh-Saudi Arabi. The total number of patients who participated in the study was 510 patients.

Gender distribution showed males were 267 (52.4%) and females were 243 (47.6%).

In our study population, those between 18 to 30 years old were 120 (23.5%) patients, 31 to 42 years old were 107 (21.0%) patients, 43 to 54 years old were 123 (24.1%) patients, and more than 54 years old were 160 (31.4) patients, **Table 1**.

Regarding marital status, 352 patients were married. Saudi patients were 4829 (94.5%) patients, and 28 (5.5%) patients were non-Saudi, 371 (72.7%) patients currently resided in Riyadh city.

Our population study showed those with children were 324 (92.04%) patients, and those who had no children were 28 patients (7.95%) patients.

The educational level of our study population showed that uneducated (illiterate) was 70 (13.7%) patients, Elementary school level 32 (6.3%) patients, Middle/High School level 192 (37.6%) patients, and Bachelor's degree 184 (36.1%)

patients, Master's degree 24 (4.7%) patients, and Ph.D. degree in eight (1.6%) patients.

The study showed that 389 (76.3%) patients took their treatment in a governmental hospital, and 121 (23.7%) patients were treated in a private hospital.

A participant with Medical Health insurance was 126 (24.7%) patients and 384 (75.3%) patients without medical health insurance.

**Results regarding factors that influence patients to decide on DAMA showed: Table 2 [n = 512]**

Regarding Inappropriate behavior and disrespect of the physician or staff to the patient and his relatives, 262 (51.4%) participants, 85 (16.7%) participants, and 163 (32%) participants agreed, neutral, and disagreed, respectively.

**Table 1.** Demographic information (n = 510).

		n	%
<b>Age</b>	18 - 30 y	120	23.5
	31 - 42 y	107	21.0
	43 - 54	123	24.1
	>54 y	160	31.4
<b>Gender</b>	Male	267	52.4
	Female	243	47.6
<b>Marital status</b>	Single	158	31.0
	Married	352	69.0
<b>Nationality</b>	Saudi	482	94.5
	Non-Saudi	28	5.5
<b>(If the answer is married), Do you have children</b>	Yes	324	92.04
	No	28	7.95
<b>Where is your current residence?</b>	Riyadh	371	72.7
	Outside Riyadh	139	27.3
<b>Educational level</b>	Uneducated	70	13.7
	Elementary school	32	6.3
	Middle /high school	192	37.6
	Bachelor's degree	184	36.1
	Master's degree	24	4.7
	PhD's degree	8	1.6
<b>Where do you always take your treatment?</b>	Government hospitals	389	76.3
	Private hospitals	121	23.7
<b>Do you have medical insurance?</b>	Yes	126	24.7
	No	384	75.3
<b>Have you ever discharged against medical advice?</b>	Yes	64	12.5
	No	446	87.5

**Table 2.** Factors influence patients to decide of discharge against medical advice (n = 510).

	Agree		Neutral		Disagree	
	n	%	n	%	n	%
<b>Inappropriate behavior and disrespect of the physician or staff to the patient and his relatives</b>	262	51.4	85	16.7	163	32.0
<b>Lack of physicians and nurses' attention to the patient and his relatives (emotionally)</b>	278	54.5	95	18.6	137	26.9
<b>Failure to inform the patient or his relatives of his condition</b>	257	50.4	95	18.6	158	31.0
<b>Feeling better</b>	226	44.3	119	23.3	165	32.4
<b>Patients or their relative's tiredness of hospital stay</b>	166	32.5	104	20.4	240	47.1
<b>Having relatives in home for which patient is personally responsible</b>	226	44.3	87	17.1	197	38.6
<b>Having familial or social issues</b>	122	23.9	76	14.9	312	61.2
<b>Looking for other medical opinion</b>	226	44.3	123	24.1	161	31.6
<b>Unexpected management plan</b>	187	36.7	139	27.3	184	36.1
<b>financial issues: (Accommodation, transportation)</b>	168	32.9	102	20.0	240	47.1
<b>Long waiting time to be seen by physician</b>	291	57.1	65	12.7	154	30.2
<b>Lack of admission beds in relevant wards</b>	265	52.0	86	16.9	159	31.2

Regarding the lack of physicians' and nurses' attention to the patient and his relatives (emotionally), our result showed that 278 (54.5%) participants, 95 (18.6%) participants, and 137 (26.9%) participants agreed, neutral, and disagree, respectively.

Regarding failure to inform the patient or his relatives of his condition, it showed that 257 (50.4%) participants, 95 (18.6%) participants, and 158 (31%) participants agreed, neutral, and disagreed, respectively.

Regarding feeling better from DAMA, our result showed 226 (44.3%) participants, 119 (23.3%) participants, and 165 (32.4%) participants agreed, neutral, and disagreed, respectively.

Regarding patients' or their relative's tiredness of hospital stay, the result showed that 166 (32.5%) participants, 104 (20.4%) participants, and 240 (47.1%) participants agreed, neutral, and disagreed, respectively.

Regarding having relatives in the home for which the patient is personally responsible, the result showed that 226 (44.3%) participants, 87 (17.1%) participants, and 197 (38.6%) participants agreed, neutral, and disagreed, respectively.

Regarding having familial or social issues, the result showed that 122 (23.9%) participants, 76 (14.9%) participants, and 312 (61.2%) participants agreed, neutral, and disagreed, respectively.

Regarding looking for another medical opinion, the result showed that 226 (44.3%) participants, 123 (24.1%) participants, and 161 (31.6%) participants agreed, neutral, and disagreed, respectively.

Regarding the unexpected management plan, the result showed that 187 (36.7%) participants, 139 (27.3%) participants, and 184 (36.1%) participants

agreed, neutral, and disagreed, respectively.

Regarding financial issues: (Accommodation, transportation) as a cause to decide DAMA, it showed that 168 (32.9%) participants, 102 (20%) participants, and 240 (47.1%) participants agreed, neutral, and disagreed, respectively.

Regarding the long waiting time to be seen by a physician as a cause to decide on DAMA, it showed that 291 (57.1%) participants, 65 (12.7%) participants, and 154 (30.2%) participants were agreed, neutral, and disagree respectively.

Regarding the lack of admission beds in relevant wards as a cause to decide DAMA it showed that 265 (52%) participants, 86 (16.9%) participants, and 159 (31.2%) participants agreed, neutral, and disagreed, respectively.

Our findings indicate that, by far, the primary reason patients decide on DAMA is the long waiting time before being seen by a physician ( $P \geq 0.001$ ). We also found a significant association between the decision to choose DAMA and the idea of inappropriate behavior or disrespect by the physician and other staff toward the patient and their relatives ( $P = 0.024$ ). We also found a significant association between DAMA and the Failure to inform the patient or their relatives about the patient's condition ( $P = 0.032$ ). Other significant correlating reasons for choosing DAMA were feelings of tiredness among the patient or their relatives and the presentation of an unexpected management plan ( $P = 0.010$  and  $0.030$ , respectively; **Table 3**).

**Table 3.** Association between patients discharged against medical advice and factor influencing patients (n = 510).

	Have you ever discharged against medical advice?			P-value
	Yes	No		
<b>Age</b>	18 - 30 y	11	109	0.066
	31 - 42 y	9	98	
	43 - 54 y	23	100	
	>54 y	21	139	
<b>Gender</b>	Male	40	227	0.082
	Female	24	219	
<b>Marital status</b>	Single	12	146	0.024*
	Married	52	300	
<b>Educational level</b>	Uneducated	9	61	0.861
	Elementary school	4	28	
	Middle/high school	22	170	
	Bachelor's degree	25	159	
	Master's degree	4	20	
	Ph.D.'s degree	0	8	
<b>Inappropriate behavior and disrespect of the physician or staff to the patient and his relatives</b>	Agree	39	223	0.024*
	Neutral	14	71	
	Disagree	11	152	

## Continued

<b>Lack of physicians and nurses' attention to the patient and his relatives (emotionally)</b>	Agree	41	237	0.092
	Neutral	13	82	
	Disagree	10	127	
<b>Failure to inform the patient or his relatives of his condition</b>	Agree	42	215	0.032*
	Neutral	9	86	
	Disagree	13	145	
<b>Feeling better</b>	Agree	31	195	0.743
	Neutral	13	106	
	Disagree	20	145	
<b>Patients or their relative's tiredness of hospital stay</b>	Agree	29	137	0.010*
	Neutral	16	88	
	Disagree	19	221	
<b>Having relatives in a home for which the patient is personally responsible</b>	Agree	26	200	0.093
	Neutral	17	70	
	Disagree	21	176	
<b>Looking for another medical opinion</b>	Agree	28	198	0.985
	Neutral	16	107	
	Disagree	20	141	
<b>Unexpected management plan</b>	Agree	33	154	0.030*
	Neutral	14	125	
	Disagree	17	167	
<b>financial issues: (Accommodation, transportation)</b>	Agree	20	148	0.880
	Neutral	12	90	
	Disagree	32	208	
<b>Long waiting time to be seen by a physician</b>	Agree	51	240	<0.001*
	Neutral	3	62	
	Disagree	10	144	
<b>Lack of admission beds in relevant wards</b>	Agree	37	228	0.360
	Neutral	12	74	
	Disagree	15	144	

\*The significant P-value.

#### 4. Discussion

DAMA remains a significant healthcare problem, constituting a major adverse effect on healthcare systems and patient care. DAMA exposes patients to the risk of untreated medical issues, an increased readmission rate, and an extended recovery period and morbidity [6].

Some studies have shown that DAMA is a significant strain on healthcare sys-



tems and a direct cause of wasted resources. Over five years, incurred costs due to DAMA are estimated to be nearly \$3 billion [12]. The calculated costs due to DAMA are 56% higher than those expected from a patient's initial hospitalization [1]. This increase in cost could be secondary to several reasons, such as a more extended readmission period, double care by physicians and nurses, and extra work-ups on the patient due to care needed to treat complications that may have occurred.

Only 12.5% of our participants reported having ever signed a DAMA; it was near the average of 13.2%, derived from three studies published in Iran [13] [14] [15].

In our study, we found that educational level has no impact on a patient's decision to sign DAMA. We found most of our participants who signed a DAMA were over the age of 43, which is in contrast to a study conducted in Pakistan [16] [17].

Our findings indicate that gender is not a major factor influencing patients' decisions related to DAMA, unlike other studies showing a significant male predominance [13] [17] [18]. Marital status was associated with DAMA ( $P = 0.024$ ), which is compatible with the study conducted in Iran [13].

We found that the significant factor that would influence our patients to choose DAMA was the long time spent waiting to be seen by a physician, with a P-value of 0.001, followed by the tiredness related to the hospital stay ( $P = 0.010$ ). Followed by inappropriate behavior and disrespect by staff ( $P = 0.024$ ), an unexpected management plan, and a failure to inform the patient or their relatives about their condition came next, with P-values of 0.030 and 0.032, respectively. These findings correlate well with findings from other studies [19] [20].

Concerns about the lack of available beds in relevant wards were not significant in our study ( $P = 0.360$ ), which could be due to the availability of private rooms and suitable accommodation in the ER and the same standard of care provided there as in the wards.

Regarding factors like physicians' and nurses' attention to the patient and their relatives' emotional support, financial issues, looking for another medical opinion, having relatives at home for which the patient is personally responsible, feeling better, and educational level, we noted only insignificant correlations with DAMA decisions. Other studies showed that financial concerns and insurance had a significant effect [8] [18] [19].

### Limitations

The study was conducted at one site, which may not reflect the true range of impressions and opinions of all citizens of Saudi Arabia.

### 5. Conclusions

A long wait time before being seen by a physician, inappropriate behavior, and staff disrespect were the significant factors that prompted patients to discharge

themselves from a hospital against medical advice respectively.

The educational level of participants and the need for more available beds have no impact on the decision to sign DAMA.

## Recommendations

Our recommendation for future study is to conduct qualitative interviews with patients and healthcare providers to explore in greater depth the factors that lead to DAMA actions and develop proper solutions to reduce and avoid DAMA decisions. The implementation of a new form or method for use at Saudi hospitals to capture all the reasons for DAMA at a national level would also facilitate studies of the phenomenon in the future.

We also recommend mandatory communication skills courses for all physicians during their training. Future studies should also assess emergency doctors' opinions regarding DAMA actions.

## Ethics Approval and Consent to Participate

This study was conducted in accordance with the Declaration of Helsinki. Permission to conduct this study was obtained from the institutional review board at KFMC (project No. 21-105). Electronic informed consent was provided by each participant before they answered the questionnaire. Participants received no compensation for their participation in the study.

## Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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## **Abbreviations**

DAMA: Discharge against Medical Advice.

ED: Emergency Department.

AMA: Against Medical Advice.

KFMC: King Fahad Medical City.

CI: Confidence Interval.

SD: Standard Deviation.

SPSS: Statistical Package for the Social Sciences.