

# Discharge against Medical Advice in Two Different Hospitals of Saudi Arabia among Pediatrics

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## Abstract

**Background:** Discharge Against Medical Advice (DAMA) is considered one of the worldwide concerns of the healthcare sector. DAMA is the condition when the patient or caregiver in the case of pediatrics, leaves the hospital against the recommendation or agreement of the treating physician. This study aims to assess DAMA prevalence among pediatrics in two tertiary hospitals in Saudi Arabia and explore demographic data related to DAMA in pediatric patients. **Methodology:** A retrospective study was conducted in two tertiary hospitals (KFMC, Dr. Suliman Al-Habib) using the medical records of all DAMA from 2021 to 2022. All analyses were performed using SPSS. Descriptive statistics and chi-square were used. P-values of less than 0.05 were statistically significant for all analyses. **Result:** The total number of discharges among the two hospitals was 10,707, with 264 DAMA cases. The prevalence of DAMA was found to be 2.47%. Most DAMA cases had a more extended stay at the hospital, exceeding 22 days, with a prevalence rate of 5.14. There was no significant difference in DAMA cases between males and females, with rates of 2.46% and 2.48% respectively. **Conclusion:** The study found that the rate of DAMA in two tertiary hospitals is within the range in Saudi Arabia. Also, DAMA was linked to more extended hospital stays, significantly impacting patients and the healthcare system.

**Keywords:** Discharge against medical advice (DAMA), pediatrics, Children, hospital, Inpatient, Saudi Arabia.

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## INTRODUCTION

Discharge Against Medical Advice (DAMA) is considered one of the worldwide concerns of the healthcare sector [1, 2]. DAMA is the condition when the patient or the caregiver in the case of pediatrics, leaves the hospital against the recommendation or agreement of the treating physician [3-5]. As a result, there is an adverse impact on the patient and the healthcare system [6]. Moreover, the prevalence of DAMA ranges between 1%-2% intentionally, with a higher percentage, such as 25%, which has been reported in some studies [7-11].

Nowadays, healthcare administrators focus on this problem as it has a negative consequence on the cost burden of the healthcare system [12, 9]; studies showed a 50% rise in the cost compared to regular discharge [9]. Furthermore, this augmentation of the cost is secondary to the readmission to the hospital following DAMA and the length of the stay [13]. Studies showed a high chance of patient readmission and a more extended period of hospitalization post-DAMA [9, 14, 15]. T. Y. Yong *et*

*al.*, reported that the readmission rate is two times higher than non-DAMA patients [16]. Also, another study showed that the risk of readmission is 14% among DAMA patients compared to 7% of regular discharge within seven days [17]. Moreover, a study by Aliyu, Z.Y. concluded that the length of stay after readmission post-DAMA was double compared to regularly discharged patients [9]. DAMA has also been associated with discontinuity of care and fragmentation, as the studies showed [18].

On the other hand, exploring the factors that lead to DAMA helps healthcare administrators mitigate the adverse effects of DAMA on the healthcare system as well as the health of the patients. Hasan *et al.*, showed that 85% of DAMA was related to insurance status [19]. Meanwhile, 40 % of DAMA patients had financial constraints [19]. Furthermore, many studies have reported that financial aspects are usually documented in countries where insurance does not cover the healthcare system [20-22]. However, Haywood has addressed miscommunication as one of the causes of DAMA [23].

Moreover, a child being well is reported as one of the causes of DAMA issued by the parents [24]. Dissatisfaction with the care has also been shown, as well as looking for a second opinion [24, 3]. Low socioeconomic and educational levels have been reported as risk factors for DAMA in many studies [10, 25], as well as young age, drug use, and male gender [26, 27].

In light of the literature, the limitations of most of the studies were assessing DAMA among one center and their recommendations to address more centers in future studies [4, 24, 25, 28]. Moreover, there is a lack of research addressing DAMA among pediatrics regionally [29].

This study aims to assess DAMA prevalence among pediatrics in two tertiary hospitals in Saudi Arabia and explore demographic data related to discharge against medical advice in pediatric patients.

## METHODOLOGY

A retrospective study was conducted in two tertiary hospitals in Riyadh, Saudi Arabia. We used the medical records of all discharges against Medical Advice from 2021 to 2022. The first hospital is King Fahad Medical City (KFMC), one of the largest public medical complexes in the Middle East, with a total capacity of 1200 beds, including a 252-bed capacity in pediatrics. The second hospital is Dr. Sulaiman Al-Habib Hospital in Ar-Rayyan, one of the region's most advanced and

most significant private health projects for healthcare facilities with a capacity of 360 beds, with a 47-bed capacity in the Pediatric Ward. Over two years from 2021-2022. We included all pediatric patients aged 0–14 years who were admitted to the pediatric inpatient department and excluded the Emergency Department, PICU, and NICU departments. We gathered basic information from medical records, which included age, gender, length of stay, and discharge disposition.

## Data Analysis

All data analyses were conducted using SPSS® Statistics version 22. Descriptive statistics were calculated for categorical variables (age, gender, and length of stay) by determining their frequencies and percentages. The association between categorical variables and discharge status was evaluated using Chi-square tests. Statistical significance was defined as p-values less than 0.05 for all analyses conducted during the data collection process.

## RESULT

From 2021 to 2022, the total number of discharges from DR. Suliman Al-Habib was 1,585. More than half of the patients were male (56.85%), and children under eight years old comprised the most significant portion (80.7%). Most patients (68.2%) had a hospital stay of 1-2 days, indicating a short stay. Most patients (91.7%) were discharged according to standard hospital procedures, while 8.33% opted for DAMA (Table 1).

**Table 1: Characterization of the study participants in DR. Suliman Al-Habib Hospital**

Baseline characteristics (n = 1,585)	Frequency, n (%)	
Gender	Male	901 (56.85)
	Female	684 (43.15)
Age (years)	< 3	640 (40.38)
	4-8	639 (40.32)
	9-14	306 (19.31)
Length of stay (days)	1-2	1081 (68.2)
	3-8	439 (27.7)
	9-22	53 (3.34)
	> 22	12 (0.76)
Discharge disposition	Discharge	1453 (91.67)
	DAMA	132 (8.33)

For the second hospital, King Fahad Medical City, the total number of discharges was 9,122. Almost half of the patients were male, with a presence of 56.85%. The largest age group is children under three

years, accounting for 46.77% of the patients. The length of stay shows that most patients stay for 1-2 days, with 41.22%, and 35.9% for 3-8 days. DAMA was only 1.44% (Table 2).

**Table 2: Characterization of the study participants in King Fahad Medical City**

Baseline characteristics (n = 9,122)	Frequency, n (%)	
Gender	Male	4922 (56.85)
	Female	4200 (43.15)
Age (years)	< 3	4267 (46.77)
	4-8	2531 (27.74)
	9-14	2324 (25.47)
Length of stay (days)	1-2	3761 (41.22)

Baseline characteristics (n = 9,122)	Frequency, n (%)	
	3-8	3275 (35.9)
	9-22	1358 (14.88)
	> 22	728 (7.98)
Discharge disposition	Discharge	8990 (98.55)
	DAMA	132 (1.44)

The rationale of this study focuses on the prevalence of DAMA in pediatrics among two hospitals in Saudi Arabia. The total number of discharges among the two hospitals was 10,707, and the total number of DAMA among the two hospitals was 264. The prevalence of DAMA was 2.47%. Most DAMA cases have an extended stay of more than 22 days with a present of 5.14. There is no significant difference between males and females in DAMA cases, which showed 2.46% and 2.48% males and females

respectively. Chi-Square statistics were done to test the association between these categories and DAMA occurrence. The gender and age variables show no significant association with DAMA (p-values 0.9 and 0.27, respectively), suggesting these factors do not influence the likelihood of DAMA. However, the length of stay is significantly associated with DAMA (p-value 0), indicating that more extended hospital stays are a predictor for DAMA (Table 3).

**Table 3: Type of discharges in comparison to variable categories in two hospitals**

Variables		Total number of discharges, n (%)	Frequency of DAMA, n (%)	Frequency of discharge, n (%)	P-value	Chi-Square
Gender	Male	5823 (54.38)	143 (2.46)	5680 (97.54)	0.9	9.12
	Female	4884 (45.62)	121 (2.48)	4763 (97.52)		
Age (years)	< 3	4907 (45.83)	109 (2.22)	4798 (97.22)	0.3	2.56
	4-8	3170 (29.61)	88 (2.78)	3082 (97.22)		
	9-14	2630 (24.56)	67 (2.55)	2563 (97.45)		
Length of stay (days)	1-2	3714 (34.69)	126 (2.05)	3638 (97.95)	0	28.45
	3-8	4842 (45.22)	76 (2.6)	4716 (97.4)		
	9-22	1411 (13.18)	24 (1.7)	1387 (98.3)		
	> 22	740 (6.91)	38 (5.14)	702 (94.86)		

## DISCUSSION

In the present study, the prevalence among two pediatric hospitals was 2.4%, which falls within the range found in most pediatric hospitals, ranging between 0.7% and 7%, as shown in the literature [30]. However, there is a variation between the prevalence of DAMA in the two hospitals, as noted in the fluctuation in the same country as mentioned in previous studies [31, 32]. DAMA was high at the private hospital, which could be explained by the financial constraint as well as insurance rejection, as supported by a report from Gloyd *et al.*, stating that DAMA would be raised with financial problems [33].

On the other hand, a low DAMA rate was observed at the governmental hospital, as shown by the present study, and a study done by al Wallan *et al.*, at a governmental center in Saudi Arabia showed a prevalence of 0.6% less than reported [29]. However, Malek *et al.*, reported a higher prevalence rate of 8.4% in one governmental center [34]. The current study was between these ranges with the same population culture and geographical area. An Iranian study showed a prevalence rate of 2.2%, similar to the present study [35]. This contrasts with another study done at an Iranian hospital by Roodpeyma *et al.*, which showed a higher rate of 5.3% [24].

DAMA in the current study has shown no difference between males and females, which is similar to Roodpeyma *et al.*, [24]. In contrast to al Wallan *et al.*, which reported four times higher DAMA rate among girls and reasoning that male preference over female children in the society [29]. However, previous studies were consistent with their result and showed a higher rate among girls in Oman, Nigeria, and Indonesia [5, 25, 36]. On the other hand, Malek *et al.*, with a similar society from Kuwait, have shown the opposite as well as Danou *et al.*, and M. Khalili *et al.*, reported that DAMA was higher in male children [30, 34, 37].

The distribution of the DAMA age group in the present study was approximate. However, a study by Debono R *et al.*, showed that the majority were teenagers, which could be secondary to the impulsive personality of the teenager, or they were admitted for less severe reasons, as mentioned [20]. This report was dissimilar to the previous study, which showed a majority of DAMA from the neonatal age group [24, 38]. A Nigerian study addressed the relation between age and DAMA, and it was found that younger age is considered a risk factor [38]. However, there is no relation between parent age and DAMA, as reported by M. Khalili *et al.*, [37].

Length of stay has been associated significantly With DAMA cases in this study, as supported by previous studies, which showed that DAMA cases were high with prolonged hospitalization [34, 37]. Moreover, length of stay was considered a risk factor for DAMA, as well as the level of education of the parents, which showed that a higher level of education would have a lower rate of DAMA even with extended hospitalization [37] and this factor reason behind DAMA was not addressed in the current study. Al-Sadoon *et al.*, showed that more than half of the cases were missing the reason for DAMA, which reflects the poor documentation as noticed by the current study [5].

On the other hand, most reasons behind DAMA were due to financial constraints, as reported in a previous study [39], which can be reflected in the private hospitals in our country, especially with free access to governmental hospitals. Other causes that have been reported include dissatisfaction with treatment or services, the perception of the parent that their child is doing better, and seeking a second opinion [5, 40].

The strength of the current study is addressing the DAMA among pediatrics in two tertiary hospitals; one governmental hospital serves the citizens, and the other is private, which serves the majority of the population in Saudi Arabia, which can be reflected in tertiary hospitals of the region.

However, this study has some limitations; since the data were collected from medical records, there was a lot of missing information, such as there is no information about the reason behind DAMA, the level of education as well as the socioeconomic of the parents, and the initial diagnosis and medical reason for admission. A future prospective study will be recommended to address this issue and mitigate its impact.

## CONCLUSION

The study results concluded that the prevalence of DAMA among two tertiary hospitals is within the range that could be reflected in the tertiary hospitals of the country. DAMA has a significant relation with the length of stay, which significantly impacts patients and the healthcare system.

### Authors' Contributions:

SA collected the data, drafted the initial manuscript, wrote the first draft, and conducted data curation and formal analysis. BQ reviewed and revised the manuscript to the final draft and edited the subsequent versions. All authors have read and approved the final draft of the manuscript.

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**Data Availability Statement:** The data that support the findings of this study are available from the corresponding author, [Dr. Shoog Alageel], upon reasonable request.

### Ethical Approval

This study was approved by King Fahad Medical City and Dr. Sulaiman Al-Habib Hospital research centers, Institutional Review Board [H-01-R-012 and HAP-01-R-082], and the informed consent requirement was waived.

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