

## Factors Associated with Discharge Against Medical Advice from Emergency Department, Universiti Kebangsaan Malaysia Medical Centre

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### ABSTRAK

*Pesakit yang pulang tanpa nasihat perubatan (DAMA) terdedah kepada akibat yang boleh mengancam nyawa. Dengan memahami faktor-faktor yang berkaitan dengan DAMA, pusat-pusat penjagaan kesihatan boleh membina strategi untuk membantu pesakit menerima rawatan perubatan yang optimum dan mengelakkan komplikasi yang lebih buruk. Objektif kajian ini adalah untuk menentukan faktor-faktor yang berkaitan dengan DAMA dari Jabatan Perubatan Kecemasan, Pusat Perubatan Universiti Kebangsaan Malaysia (PPUKM). Kajian ini telah dijalankan dalam tempoh 4 bulan. Bagi setiap DAMA, dua pesakit lain yang dimasukkan ke wad pada hari sama telah dipilih secara rawak sebagai kumpulan kawalan. Data telah dikumpulkan melalui borang soal selidik setelah mendapatkan persetujuan pesakit. Pesakit telah dihubungi dalam masa dua minggu selepas DAMA. Dari 93 pesakit, kumpulan DAMA mempunyai 31 pesakit dan kumpulan kawalan mempunyai 62 pesakit. Kaedah pembayaran adalah faktor ketara bagi pesakit menambil DAMA (OR 3.17 95% CI 1.29-7.98;  $p = 0.01$ ). Kebarangkalian DAMA bagi pesakit yang membayar kos perawatan sendiri adalah tiga kali lebih tinggi daripada mereka yang mempunyai surat penjamin daripada majikan atau syarikat insurans. Faktor-faktor lain yang mempengaruhi DAMA adalah keluarga (OR 4.08 95% CI 1.09-15.26;  $p = 0.03$ ) dan kerja (OR 3.83 95% CI 1.13-12.94;  $p = 0.03$ ). Sebanyak 19.4% pesakit mengambil DAMA berikutan gejala kesakitan berkurangan. Sebanyak 80.6% pesakit telah dimasukkan semula ke hospital dalam tempoh dua minggu setelah DAMA. Kaedah pembayaran mempengaruhi keputusan untuk DAMA. Kemudahan pembayaran yuran secara berkala, perkhidmatan kebajikan sosial, bantuan dana dari organisasi bukan kerajaan dan skim dasar kesihatan kebangsaan boleh mengurangkan DAMA.*

*Kunci kunci: DAMA, kecemasan, hospital, rawatan, discaj*

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## ABSTRACT

Patients who self-discharge against medical advice (DAMA) are susceptible to life-threatening consequences. By understanding the factors associated with DAMA, healthcare centres can build strategies to assist patients to receive optimal medical care and prevent unfavourable outcome. The objective of this study was to determine the factors associated with DAMA from the Emergency Department (ED) of Universiti Kebangsaan Malaysia Medical Centre (UKMMC). This was a prospective unmatched case control study conducted over a 4-month period. For every DAMA episode, two patients who were admitted on the same day were randomly selected as control. Following patient consent, data was collected using a standardized questionnaire. Patients were contacted by the investigator for information regarding hospitalization within two weeks of DAMA. Ninety three patients were recruited; 31 DAMA patients and 62 admitted patients. Payment method was significantly associated with DAMA (OR 3.17 95% CI 1.29-7.98;  $p=0.01$ ). The likelihood of self-paying patients to take DAMA was three times higher than those who had a guarantor letter from their employer or insurance provider. Other factors which influence DAMA were family obligations (OR 4.08 95% CI 1.09-15.26;  $p = 0.03$ ) and work problems (OR 3.83 95% CI 1.13-12.94;  $p=0.03$ ). A total of 19.4% of DAMA patients left following symptomatic pain relief. A total of 80.6% DAMA patients were admitted to hospital within two weeks of the DAMA episode. Payment method significantly influences DAMA. Payment planning, social welfare services, non-governmental organization funds and the introduction of a national health policy scheme may aid hospital payment, alleviate financial limitation of patients and reduce DAMA episodes.

Keywords: DAMA, emergency, hospital, treatment, discharge

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## INTRODUCTION

A basic principle of hospitalization is to provide adequate definitive care and treatment. In the past, medical 'paternalism' meant that patients were unable to make their own decisions regarding nature of their medical care (Bell et al. 1847). However, patients are now more aware of their rights to decide and determine these aspects. The expression of these rights of self-determination may result in a patient discharging themselves against medical advice. Discharge against medical

advice (DAMA) refers to a patient who leaves hospital before the treating physician recommends discharge (Alfandre 2009). Premature withdrawal from treatment has been shown to result in higher rates of hospital readmissions (Hwang et al. 2003). These patients are potentially susceptible to life-threatening consequences in the absence of optimal medical care (Carrese 2006; Moy & Bartman 1996). Readmission has been shown to lead to longer hospital stays, higher costs of care, increased use of hospital

resources, and indirectly affects the delivery and quality of care to non-DAMA patients (Moy & Bartman 1996; Ibrahim et al. 2007). This results in an increase in burden of health care facilities. The present study aimed to determine the factors associated with DAMA in an Emergency Department (ED) in order to better understand and minimize DAMA.

## MATERIALS AND METHODS

This was a prospective unmatched case control study conducted over a 4-month period. Data was collected following the approval of the institutional review board and ethics committee. The cases were patients who took DAMA; controls were patients who were admitted to an in-patient ward from the ED. For every DAMA, two control patients were randomly selected on the same day. Using a Power Sample Size Calculator program, a total of 26 cases of patients and 52 controls were required to achieve statistical significance of 0.05 and power of 80 percent. Calculation was made based on the proportions quoted in the study by Baptist et al. (2007).

The exclusion criteria were patients who were less than eighteen years of age, non-resident, transferred patients, incomplete physician's evaluation, or with reduced Glasgow Coma Scale (GCS), intubated patients and those who were not contactable within two weeks. Data was collected following patient's consent. A standardized questionnaire was used to elicit factors that influenced the personal and treatment factors affecting their decision-making

pertaining to the DAMA episode. Patients were contacted by the investigator for information regarding hospitalization within two weeks of DAMA. Statistical Package for Social Sciences (SPSS) version 19 was used to analyse the data. Univariate analysis was performed to identify significant factors. Important influencing factors and factors with significance of less than 0.2 were included in the final multiple logistic regression analysis.

## RESULTS

A total of 93 patients had given their consent for the study. There were 31 patients in the DAMA group and 62 patients in the control group however, two patients in the control group did not complete the questionnaire form as indicated, thus were not included in the analysis for factors influencing DAMA. There appeared to be no statistical demographic differences between the control and DAMA groups (Table 1). The method of hospital payment shows a significant association in the decision-making process. Self-paying patients were three times more likely to DAMA (Table 2). Within two weeks after DAMA, a total of 80.6% patients were readmitted to hospital. Patients citing family and work obligations were four times more likely to DAMA (Table 3). Expectation of an 'immediate' cure of the disease significantly influenced DAMA ( $p=0.02$ ). Multiple logistic regression analysis identified that self-paying patients were more likely to DAMA than those who had a guarantee letter (GL) or insurance cover (Table 4). The principal reasons given for DAMA

were achievement of relief of symptoms (19.4%), financial problems (16.1%), living far away from the hospital (16.1%), dissatisfaction with care (12.9%) and work obligations (9.7%).

Table 1: Demographic characteristics of cases (DAMA) and control (admitted) group

Variables	DAMA N = 31 n (%)	Control N = 62 n (%)	P Value
<b>Gender</b>			
Male	20 (64.5)	28 (45.2)	0.08
Female	11 (35.5)	34 (54.8)	
<b>Race</b>			
Malay	14 (45.2)	38 (61.3)	0.34
Chinese	14 (45.2)	20 (32.3)	
Indian	3 (9.6)	4 (6.4)	
<b>Age</b>			
Mean	45.4 ± 21.2	51.42 ± 20.2	0.180
18 - 24	4 (12.9)	7 (11.3)	
25 - 34	8 (25.8)	10 (16.1)	
35 - 44	4 (12.9)	6 (9.7)	
45 - 54	4 (12.9)	12 (19.4)	
55	11 (35.5)	27 (43.5)	

Table 2: Socio demographic and primary assessment factors influencing discharge against medical advice

Variables	DAMA N = 31 n (%)	Control N = 62 n (%)	P Value
<b>Income</b>			
RM 2000	24 (77.4)	47 (75.8)	0.86
>RM 2000	7 (22.6)	15 (24.2)	
<b>Hospital payment</b>			
GL & Ins	9 (29.0)	35 (56.5)	0.01
Personal	22 (71.0)	27 (43.5)	
<b>Education Level</b>			
Low	23 (74.2)	42 (67.7)	0.52
High	8 (25.8)	20 (32.3)	
<b>Triage</b>			
Non-critical	2 (6.5)	13 (21.0)	0.07
Critical	29 (93.5)	49 (79.0)	

GL = Guarantee letter; Ins = Insurance

Table 3: Decision making factors influencing discharge against medical advice

Variables	DAMA N = 31	Control N = 60	P Value
<b>Financial obligations</b>			
Disagree	20 (64.5)	48 (80.0)	0.11
Agree	11 (35.5)	12 (20.0)	
<b>Family obligations</b>			
Disagree	24 (77.4)	56 (93.3)	0.03
Agree	7 (22.6)	4 (6.7)	
<b>Work obligations</b>			
Disagree	23 (74.2)	55 (91.7)	0.03
Agree	8 (25.8)	5 (8.3)	
<b>Child care problem</b>			
Disagree	26 (86.7)	57 (95.0)	0.16
Agree	4 (13.3)	3 (5.0)	
<b>Traditional Belief</b>			
Disagree	22 (71.0)	34 (56.7)	0.18
Agree	9 (29.0)	26 (43.3)	
Communication	12.00(2)	12.00(2)	0.70
Health care mannerism	6.00(6)	5.86(0)	0.47
Disease knowledge	3.00 (2)	3.00(1)	0.23
Confidence in treating physician	3.00(0)	3.00(0)	0.22
Treatment plan agreement	3.00(1)	3.00(1)	0.97
Immediate cure of disease	3.00(1)	3.00(0)	0.02
Quality of care*	2.81 (0.91)	3.08 (0.61)	0.09
Immediate effect of medication*	2.39 (0.92)	2.62 (0.78)	0.22

Values are in median (IQR) or frequency (%) except for (\*) are in mean (SD).

Table 4: Factors influencing the decision making process for taking discharge against medical advice

Variables	B	SE	Wald	Adj Ratio	95% CI	P value
Payment method	1.17	0.53	4.83	3.22	1.14, 9.14	0.03
Family obligations	0.18	0.88	0.04	1.19	0.21,6.64	0.84
Financial obligations	-0.13	0.63	0.04	0.88	0.26, 3.01	0.84
Work obligations	0.90	0.84	1.13	2.45	0.47, 12.79	0.29
Child care problems	0.71	0.97	0.54	2.03	0.31, 13.51	0.46
Traditional belief	-0.58	0.55	1.11	0.56	0.19, 1.65	0.29
Quality of care	-0.60	0.72	0.69	0.55	0.13, 2.26	0.41
Confidence in physician	-0.11	0.48	0.05	0.90	0.35, 2.30	0.82
Immediate cure of disease	-0.70	0.44	2.52	0.50	0.21, 1.18	0.11

## DISCUSSION

It is important for doctors in the Emergency Department to identify potential DAMA patients early so that intervention can be undertaken to prevent DAMA. In previous studies, DAMA patients were found to be young males from low socio-economic status groups and without health insurance (Ibrahim et al. 2007; Nasir & Babalola 2008; Pennycook et al. 1992). The present study found a significant association of DAMA with family and work obligations but not in childcare. Traditionally, the main family earners are males. Hence, their absence from work will affect the family's income (Baptist et al. 2007; Onukwugha et al. 2010). The majority of our DAMA patients were from lower-income groups. One third attributed financial difficulties as the major factor for their decision to DAMA. Self-paying patients were three times more likely to take DAMA. This finding is comparable to previous studies (Ibrahim et al. 2007; Nasir & Babalola 2008; Fiscella et al. 2007). This factor is potentially open to modification as policies may be adopted to ease the burden of patients with financial difficulties. Free registration, discounted charges, payment planning scheme, access to social welfare support and alliances with non-governmental organizations or corporate bodies should be considered.

Higher rates of DAMA were found in older age groups, patients with HIV infection, alcohol intoxication, substance abuse and psychiatric conditions (Green et al. 2004). DAMA in older age groups is especially of concern as these patients may subsequently

experience more complications as they may have higher prevalence of comorbidities. Furthermore, these patients may return with increased disease severity resulting in prolonged hospital stay, and higher rates of morbidity and mortality (Green et al. 2004).

Increased DAMA was identified in patients with lower educational backgrounds. This is most likely due to poor understanding of their disease and treatment requirements. Health care providers may have used medical terms during explanation to patients regarding the nature of the disease, its course and compliance to treatment. Having good literacy is important to access the health care system. Patients with limited literacy will have increased reliance on health care personnel for assistance and advice and this will affect health outcomes (Osborn et al. 2011; Morris et al. 2011).

Good documentation practice should include information regarding the disease and its severity, risk and benefit of hospitalization and treatment, patient's decision-making competency and arrangements for follow-up or an alternative care (Devitt et al. 2000a; Devitt et al. 2000b). There are multiple tools available to assess patient's decision-making capacity but they are time-consuming for use in the ED (Grisso & Appelbaum 1998; Appelbaum 2007; Kim & Caine 2002). Any assessment for competency in decision-making for DAMA is based on four steps by the patient: i) ability to understand the information provided; ii) ability to retain this information; iii) ability to process the information; iv) ability to communicate the decision

clearly (Phillips et al. 2009). A decision to prematurely withdraw from treatment has an adverse health effects resulting in higher rates of ED revisits and hospital readmissions (Hwang et al. 2003; Fiscella et al. 2007). These increase the burden on healthcare facilities as readmissions result in longer hospital stays, higher costs of care, increased use of hospital resources, and indirectly affects the delivery and quality of care to non-DAMA patients (Moy & Bartman 1996; Ibrahim et al. 2007; Seaborn Moyse & Osmun 2004). Interventions such as following up DAMA patients by phone calls, home visits and arrangement of proper outpatient care is recommended (Hwang et al. 2003).

Quality of care is the fundamental basis of a health care institution. Communication plays a major role in the provision of quality medical care. Inconsistency of information, unavailability of healthcare providers for enquiry or explanation, apathy, rudeness and unfriendly welcome have previously been shown to be contributing factors for DAMA (Pennycook et al. 1992; Onukwugha et al. 2010; Berger 2008).

The results of the present study found that the tendency to DAMA was higher in patients who experienced symptomatic relief of their condition. Immediate relief of symptoms can result in a belief of cure (Wong et al. 2000). Trust is a fundamental component in the clinician-patient relationship. Confidence in a physician's care increases the patient compliance and adherence to treatment; without this patients are more likely to seek a second opinion (Nasir & Babalola 2008;

Mckinstry et al. 2006). Cultural beliefs and alternative care seeking behaviour from traditional healers may influence our society and in other studies, it was found to contribute to DAMA (Nasir & Babalola 2008). The majority of patients agreed to the prescribed treatment plan, but a few disagreed due to a strong belief in traditional complimentary medicine. Inconsistency of a treatment plan from one physician to another, patients of young age, higher educational background, increased self-determination and the capability of making decisions have been shown to contribute to DAMA (Onukwugha et al. 2010; Wong et al. 2000). Taking adequate time to explain about the nature of the patient's condition and its course may generate the trust and gain confidence from the patient, therefore preventing DAMA.

Every physician is obligated to protect their patients from harm and to promote well-being. However, patients can practice their autonomy to choose or refuse a course of treatment (Carrese 2006). Striking a balance between these two fundamental, but potentially conflicting, obligations is a challenge. The present study confirms that readmission rates are high in DAMA patients, implying that they have left prematurely and with suboptimal treatment. To address this, we suggest that a standard DAMA protocol must be followed. This includes providing choice of treatment, informing the patient about likely sequelae of DAMA, determining their competency in decision-making and instituting appropriate follow-up after a DAMA episode (Berger 2008; Naess et al. 2001).

This study was limited to a single centre which may not reflect the DAMA situation for other institution in this country.

## CONCLUSION

Financial issues have a significant impact on DAMA. By identifying factors which influences patient's decisions to take DAMA, early appropriate measures and effective preventive strategies may be undertaken to minimize DAMA.

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