DISCHARGE AGAINST MEDICAL ADVICE IN EMERGENCY DEPARTMENT HOSPITAL UNIVERSITI SAINS MALAYSIA; ASSOCIATED FACTORS, REASONS, AND SHORT TERM FOLLOW UP RATE

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LIST OF ABBREVIATIONS

AM: Ante Meridiem

ARS: Attendance of Registrar and/or Specialist

CNA: call not around

DAMA: Discharge Against Medical Advice

ED: Emergency Department

GL: Guarantee Letter

USM: Universiti Sains Malaysia

LOS: Length of Stay

PM: Post Meridiem

ABSTRAK

Pengenalan: Pesakit yang pulang bertentangan nasihat perubatan (DAMA) atau pulang atas risiko sendiri dikaji di seluruh dunia oleh pelbagai institusi dalam usaha meningkatan kualiti perkhidmatan kesihatan. Kajian terhadap DAMA di jabatan kecemasan di Malaysia adalah sangat terhad. Kajian ini bertujuan untuk melihat prevalens DAMA, faktor-faktor yang berkaitan, sebab, dan kadar kedatangan semula jangka pendek mereka.

Kaedah: Ini adalah kajian prospektif perbandingan kes di kalangan 264 pesakit (88 kes dan 176 kawalan) dalam tempoh tiga bulan dari Jun 2019 hingga Ogos 2019 di Jabatan Kecemasan (ED) Hospital Universiti Sains Malaysia. Wawancara panggilan telefon yang dipersetujui dijalankan pada hari ke-3 hingga hari ke-5 setelah pesakit DAMA pulang untuk mengetahui kadar rawatan susulan dalam tempoh 72 jam ke mana-mana kemudahan kesihatan dan penyebab mereka DAMA.

Hasil: Prevalens DAMA di ED adalah 6.36 dalam 1000 populasi pesakit. Apabila disesuaikan dengan faktor pembaur yang lain, bagi setiap tahun peningkatan usia, kemungkinan DAMA adalah 8% lebih tinggi (AOR: 1.08, 95% CI: 1.01 - 1.17), dan wanita adalah lebih rendah berbanding lelaki (AOR: 0.27, 95 % CI: 0.12 - 0.62). Untuk kesan interaksi antara usia dan triage, kemungkinan mengalami DAMA adalah 9% lebih rendah (AOR: 0.91, 95% CI: 0.83 - 0.99) pada pesakit zon hijau yang berinteraksi dengan peningkatan usia berbanding dengan zon merah. DAMA meningkat 35% (AOR: 1.35, 95%

CI: 1.00 - 1.82) pada pesakit zon hijau yang berinteraksi dengan peningkatan tempoh berada di ED (LOS) berbanding dengan pesakit zon merah. Satu perlima pesakit DAMA datang untuk rawatan susulan jangka pendek, dan kebanyakan yang lain sihat. DAMA kebanyakannya disebabkan oleh alasan sosioekonomi, tetapi peratusan subkategori alasan tertinggi yang dinyatakan untuk DAMA adalah 'kelegaan simptoms atau merasa sihat'.

Kesimpulan: DAMA dikaitkan dengan peningkatan usia, pesakit lelaki, dan interaksi dua hala faktor triage kepada umur dan tempoh berada di hospital. Walaupun prevalens DAMA adalah rendah, fasiliti kesihatan yang berbeza dengan hasil kajian yang berbeza dapat membantu meningkatkan kualiti perkhidmatan dengan mengenal pasti faktor-faktor ramalan, dan peningkatan pemahaman tentang sebab pesakit DAMA.

Kata kunci: pulang atas risiko sendiri, jabatan kecemasan, pulang bertentangan nasihat perubatan.

ABSTRACT

Introduction: Discharge against medical advice (DAMA) is studied worldwide in multiple setting alongside the quality improvement of health service delivery. There were currently limited studies on DAMA in the emergency department in Malaysia. This study aims to look at the prevalence of DAMA in the study setting, their associated factors, reasons, and short term follow up rate.

Methods: This was a prospective case-control study among 264 patients (88 cases and 176 control) over a three- month period of June 2019 until August 2019 in Emergency Department (ED) of Hospital Universiti Sains Malaysia, Kelantan. Consented phone call interviews were conducted day three to day five after the discharge of DAMA patients to find out on any 72-hour follow-up to any health facility and their reason for DAMA.

Results: Prevalence of DAMA in ED was 6.36 in 1000 patient population. When adjusted with other confounding factors, in every year increase of age, the odds of having DAMA was 8% higher (AOR: 1.08, 95% CI: 1.01 - 1.17), and female was lower compared to male (AOR: 0.27, 95% CI: 0.12 - 0.62). For the interaction effect between age and triage, the odds of having DAMA was 9% lower (AOR: 0.91, 95% CI: 0.83 - 0.99) in green zone patients interacting with increasing age compared to the red zone. DAMA was 35% higher (AOR: 1.35, 95% CI: 1.00 - 1.82) in green zone patients interacting with the increasing length of stay in ED compared to red zone patients. One-fifth of DAMA patient came for short term follow up, and most others were well. DAMA were due to socioeconomic

reasons mostly, but the highest percentage of reason subcategory expressed for DAMA was the 'relief of symptoms or feeling well'.

Conclusion: DAMA was associated with increasing age, male patient, and interaction of triage factor to the age and length of stay in the hospital. Although the prevalence of DAMA was low, tailored finding in the studied facility could prompt further improvisation in administrative and practice setting by further understanding of DAMA associated factors and reasoning.

Keywords: discharge against medical advice, emergency department, self-discharge

CHAPTER 1.0 INTRODUCTION

1.1 OVERVIEW OF DISCHARGE AGAINST MEDICAL ADVICE

Among the mission of the Ministry of Health Malaysia is to ensure high-quality health system that is customer-centred, efficient and environmentally adaptable with emphasis on professionalism, caring, and respect for human dignity. Patients as customers channeled dissatisfactions and complaints by different means; either in formal or non-formal form of verbal and actions. Traditionally, disagreements and decisions of patients going against medical advice have always been viewed as a negative anecdote of healthcare providers and patient relationship.

Discharge against medical advice (DAMA) or self-discharge is described as when patients choose to leave the hospital before the treating physician recommends discharge,[1]. DAMA has been studied worldwide looking at multiple aspects including the prevalence, mortality, associated factors, and readmission rate,[2, 3]. Patients had opted for DAMA at various stages of time after contact with attending healthcare practitioners whether in primary care including emergency department (ED) or during the stay in wards,[4, 5]

CHAPTER 2.0 STUDY PROTOCOL

2.1 INTRODUCTION

DAMA cases in ED represent increasing liability risks to emergency medicine physicians,[6] as these case were frequently associated with severe underlying pathology,[7-9]. Published studies on DAMA in the western region has been available since the 1940s,[10] expressing concern on tuberculosis patient non-compliant to treatment and advice. Other than regional studies,[9, 11] or hospital-centred studies,[5, 12, 13], DAMA studies were also conducted according to specialty wards such as medical wards, surgical wards and psychiatry units. These studies were exploring at the associated factors, reasons and comparing outcomes in general or by certain medical conditions such as myocardial infarction, asthma, and pneumonia,[7, 8, 12, 14, 15].

2.2 LITERATURE REVIEW

In previous studies worldwide, DAMA was found to be wide-ranging from 1.44 % to 51% in multiple settings,[3, 11, 14, 16] in the adult population. In the United Kingdom, published data by National Health System (NHS) in 2015 revealed an increase in the number of DAMA from 1.77% in 2012, to 2.21% in 2014, while another published western data showed a rate of 2.4% DAMA in United States hospitals in general,[3]. More alarming higher rates were seen among developing countries, such as Iran up to 8.4%,[17] and 5.6% India,[16].

ED functioning as the hospital interface for cases, was visited with a large number of patients. The same percentage of DAMA compared to other units in a hospital implied a larger number of patients and the percentage could be as significant as 58.2 % of total DAMA patient in a hospital,[18]. Dubow,[19] has conducted a study to assess documentation of medical record as well as patient's perception of their experience in the ED and has been the first to report DAMA rate in the ED as 0.1%. The following study in 2007,[20] showed a rate of 2.7 %, and later, DAMA in ED was estimated to be around 20.2 % of total ED patient in a setting in Iran,[4].

There was not much data on DAMA locally. One prospective survey of DAMA discharges from Hospital Taiping gave an incidence of 2.1%,[21]. There was no available data found on the prevalence of DAMA in ED in Malaysia. Another published study was a prospective unmatched case-control study examining factors influencing the decision-making process for taking DAMA,[22].

Multiples studies have shown that DAMA was associated with increase morbidity and mortality. In the previous study by Hwang,[23], patients who took DAMA were much more likely to be readmitted within 15 days compared to the control patients (21% versus 3%, with $p< 0.001$). In the United States, between 2002-2008, DAMA was associated with higher 30-day readmission after adjustment (OR adj 1.84; 95% CI, 1.69-2.01) and higher mortality than planned discharge (with an adjusted odds ratio of 2.05; confidence interval 95%, 1.48-2.86),[3]. Viewing the return visits of patients in ED in more acute representations, some studies,[24-27] have examined the 'bounceback' patients; that were the patients returning within 72 h from the initial ED visit, as a quality assurance indicator. Out of these avoidable unscheduled return visits to ED,[25] has found that around 40% were associated with a deficiency in medical management. As high as 35 % of patients

DAMA had a return visit for follow up care to either ED of primary care physician 72 hours after DAMA, and more than half of these group reported to have unchanged or worsened symptoms,[28].

In the United States, DAMA was associated with higher education level, higher income, male, younger age, presence of medical insurance, and urban population,[11]. However, contradicting results were seen in different populations where DAMA was associated with a rural background, and low education level,[16]. Another study showed that other provider variables such as failure to orient patients to hospitalisation, failure to establish a supportive provider-patient relationship, and by temporal variables, such as evening and night shifts were found to be the predictive factor,[14].

A study in ED in Iran on DAMA patients where the rate of DAMA was found to be at 20.2% showed that 'dissatisfaction with care and diagnostic or therapeutic procedure' to be the most common reason (38.2%),[4]. Among other cited reason for DAMA are personal and family matters, feeling well enough to leave, dissatisfaction with treatment received, feeling bored and fed up, and general dislikes of hospital,[23]. In Bahrain, improved health condition, children at home, and long waiting time were the top three reason for DAMA from ED,[18]. In another study in Iran, the patient-related reasons such as enough satisfactory feeling and willingness to continue home remedy showed a higher impact on DAMA compared to hospital-related reasons; such as the desire to visit private centres. These factors were associated with patient's residence, marital status, and education level,[29]. Either these reasons were due to treatment-related or patient-related, findings varied among studies in different centres although come from a similar geographical background.

A local study by in Hospital Universiti Kebangsaan Malaysia,[22] comparing 31 DAMA patients and 62 admitted patients, found that payment method had a significant association with DAMA (OR 3.17 95% CI 1.29-7.98; p=0.01) where self-paying patients have three times higher likelihood than those who had a guarantor letter from their employer or insurance provider for DAMA. 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, and a total of 80.6% DAMA patients were admitted to hospital within two weeks of the DAMA episode.

2.3 PROBLEM STATEMENT

There were great works of literature studying DAMA globally, but data involving Malaysia population was still lacking. There has been one published study done in the Malaysian ED setting, but different settings and population may yield different results. There was no single study on the prevalence of DAMA in Malaysian ED. There was no previous study done exploring DAMA in the east coast region, and a lot is still unknown.

2.4 STUDY JUSTIFICATION AND BENEFIT OF THIS STUDY

Local study of DAMA including prevalence, associated factors, and reasons for DAMA are needed for better understanding of DAMA in Hospital Universiti Sains Malaysia (USM) specifically, and this region generally. A better understanding may help future improvement and improve patient's satisfaction and concern; a significant benefit for

the patients. Increase in understanding of DAMA and improvement of quality brings better perception towards the healthcare provider, offering significant benefit to our healthcare provider system. This study will be an excellent initiating effort to break the ice and see the burden and issue related to DAMA.

2.5 RESEARCH QUESTION(S)

I. What is the prevalence of DAMA in ED Hospital USM?
II. What is the rate of seeking short term follow up care among DAMA patients to health facilities?
III. What are the associated factors of DAMA among patients in ED Hospital USM?
IV. What are the reasons for DAMA in ED Hospital USM?

2.6 OBJECTIVES

2.6.1 General objective

To study on DAMA patients in ED Hospital USM**.**

2.6.2 Specific objective

I. To determine the prevalence of DAMA in ED Hospital USM from June 2019 until August 2019
II. To describe the short term follow up care among DAMA patients to health facilities
III. To identify the associated factors of DAMA in ED Hospital USM
IV. To describe the reasons for DAMA in ED Hospital USM

2.7 METHODOLOGY

2.7.1 Study Design

This study is a prospective observational unmatched case-control study that includes DAMA patients to ED Hospital USM who fulfil all inclusion and exclusion criteria. DAMA patient will be taken as cases, and patient with non-DAMA disposition will be taken as controls.

2.7.2 Study Duration

Three months duration from June 2019 until August 2019

2.7.3 Study Location

Emergency Department Hospital Universiti Sains Malaysia, Kubang Kerian, Kelantan

2.7.4 Study Population

2.7.4.1 Reference population

All patients who attended ED Hospital USM

2.7.4.2 Study Population

All patient with a documented disposition from ED Hospital USM from June 2019 until August 2019

2.7.4.2 Study Participants

All patient with documented disposition in ED Hospital USM from June 2019 until August 2019 who fulfil the inclusion and exclusion criteria

2.7.5 Subject Criteria

2.7.5.1 Inclusion Criteria

- Referred cases from other hospital or centres

2.7.5.2 Exclusion Criteria

- Patient call not around (CNA) [14] or absconded cases, were excluded since no proper assessment and advice from healthcare practitioner was given prior to discharge.
- Patient with recurrent visits or recurrent DAMA within the study period
- Patient less than 18-year-old,[22]
- Patient unable to express consent as per evaluated by attending physician
- Patient with a concurrent psychiatric problem

2.7.5.3 Withdrawal criteria

- Patient or next of kin expressing withdrawal or refusal to join study through follow up phone call even after earlier formal consent was taken and documented in ED prior to DAMA
- Patient of case or control whom the medical record or registry unable to be retrieved or traced

2.7.6 Sample Size Estimation

2.7.6.1 Sample Size for **Objective 1**

The sample size for the prevalence is calculated using a single proportion formula as follows, using the latest and nearest prevalence of DAMA in Malaysia,[21]

$$n = \left(\frac{Z_{\alpha}}{d} \right)^2 * P(1 - P)$$

P- published nearest local data on DAMA,[21]= 2.1%

D = 0.015

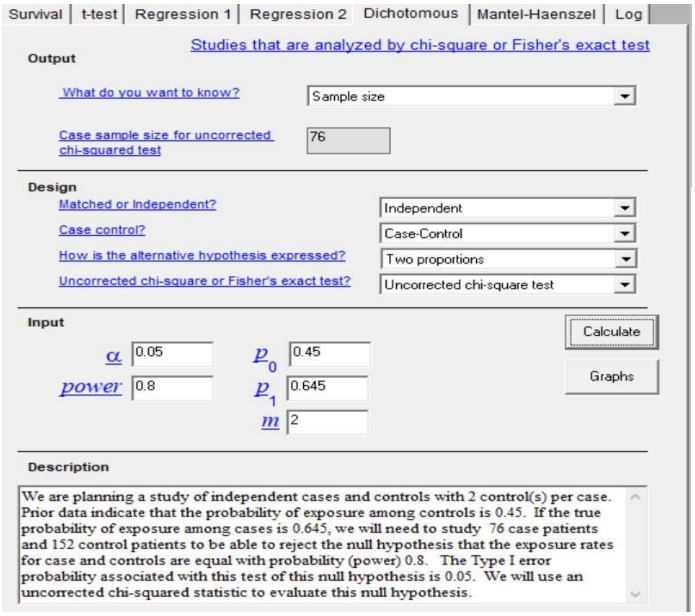
Zα = 1.96

N = 351

Hence, n + 10% drop out = **387**

2.7.6.2 Sample Size for **Objective II, III, and IV**

Diagram 1: Sample size calculation using PS Power and Sample Size Calculator



Gender (male) (Ismail *et al.*, 2016)	
P0	0.45
P1	0.645
Significance level (α)	0.050
Power (1-ß)	0.800
M	2
Sample size	76

Using the largest and most feasible parameter that is gender; male (Ismail *et al.*, 2016), sample size calculation was done using PS Power and Sample Size Calculations Version 3.0 (Dupont and Plummer Jr, 1990) We are planning a study of independent cases and controls with two control(s) per case. Prior data indicate that the probability of exposure among controls is 0.45. Suppose the true probability of exposure among cases is 0.645. In that case, we will need to study 76 case patients and 152 control patients to be able to reject the null hypothesis that the exposure rates for case and controls are equal with probability (power) 0.8. The Type I error probability associated with this test of this null hypothesis is 0.05. We will use an uncorrected chi-squared statistic to evaluate this null hypothesis.

- Sample + 10% Drop-out rate: **83**
- Therefore, for **Objective III**, the study will include **83 cases and 166 contro**l, with a total of **249 patients.**
- For **Objective II and IV**, studied patients will be the same group of DAMA patient selected for objective III.

2.7.7 Sampling Method and Subject Recruitment

- For **Objective I**: Simple random sampling from the register book in ED during the study period using www.randomizer.org
- For **Objective II, III, and IV**: Simple random sampling will be used to choose the DAMA group from all DAMA cases during the study period using www.randomizer.org . For example, if there is an estimation of 90 cases of

DAMA in the study period, 83 patients will be randomly chosen by www.randomizer.org **(Appendix 1).** A control group consisting of 166 patients will be selected from the registry book using the similar application. If there is nine total number of registry book in the study period from all zones, 19 cases will be taken from each book randomly based on the number generated by the website as shown in **Appendix 2.** These numbers represent the sequence of recorded cases in the registry book. Out of these 171 cases representing patients throughout the study period, 166 cases will be randomly selected again **(Appendix 3),** and for the 166 control group, data will be retrieved from the recorded information from registry book, case note and admission records. If the patient does not fulfil the inclusion and exclusion criteria, the immediate next number will be selected. If a patient from case and control group presented more than once to ED Hospital USM in this study data collection period, only the first time DAMA or attendance will be included.

2.7.8 Operational Definition

- **AM shift**: registration in ED from 8.00 am until 2.59 pm
- **DAMA**: DAMA after assessment by a medical practitioner and with documented DAMA and AOR (at own risk) form signed from all zones of ED Hospital USM during the study period.
- **Length of stay in ED:** time of registration until time of disposition in ED
- **Night Shift:** patient registered in ED from 10.00 pm until 7.59 am the next day

- **Place of residence close to hospital:** the place of residence within 15 km radius from Hospital [5]
- **Place of residence far from hospital**: the place of residence beyond 15 km radius from hospital [5]
- **PM shift:** registration in ED from 3.00 pm until 9.59 pm
- **Public holiday:** National and applicable to Kelantan only public holidays
- **Short term follow-up care**: Any visit to a healthcare facility within 72 hrs [27]
- **Weekends:** Friday and Saturday

2.7.9 Research Tool

- Data Collection Form **(Appendix 4)**
- Call Recorder Application: This is a free Android application downloadable at Google Playstore.

2.8 DATA COLLECTION METHOD

2.8.1 Overview of Patient Flow in ED Hospital USM

ED Hospital USM received approximately 50-60,000 patients annually. Each case presented to all zone in the ED will be registered in the system at the admission counter, and recorded manually in register book at every zone by in-charged staff of that shift. All cases will be attended by medical officers with or without being seen by a house officer before it. All cases in the red zone and most of the yellow zone cases depending on floor availability, will be attended by registrars. Cases will also be attended by specialist

depending on availability and need, but specialist consultation is available 24 hours on call. The ED team will then come up with diagnosis(es) and subsequently refer the case to the on-call team of related disciplines. Each team will then come to ED for review and assessment. After completion of the assessment, these cases will be given disposition, either for admission, observation, or discharged.

If a patient opted for DAMA and deemed fit to make a decision by the attending physician, after being explained regarding risk and complications of refusing medical treatment, the patient will sign the AOR (At Own Risk) discharge form. The staff nurse will once again update the registry with final diagnoses and disposition information of patients. Any case of DAMA will be documented at the registry book manually at the disposition column. Previously, there was no formal DAMA registry or census done in ED Hospital USM.

2.8.2 Data Collection

DAMA cases from all zones will be identified by the staff nurse and doctor on the floor during treatment and immediately notified the investigator. DAMA cases could also be identified from a daily routine review of registry books by the investigator during the study period. For eligible cases, consent will be taken from DAMA patients or accompanying immediate family members should patient had a physical limitation in signing the consent, with the patient's permission. The written consent includes consent for a further follow-up call. Each subject will be assigned with a unique study number. A separate list of names containing relevant identification data will only be held available to the investigator to maintain the patient's confidentiality. Relevant data will be extracted from medical record and registry and documented into the data collection form. If the

patient already being discharged (DAMA) upon investigator notification, verbal consent was taken during follow up call before the interview.

After that, further follow up call on Day 4 to Day 5 post-visit will be conducted towards all DAMA patients. Three open-ended questions will be used:

- Is there any follow-up visit to any healthcare facility within 72 hours after DAMA?
- If yes, is the patient be admitted or discharged?
- If there was no documented reason for DAMA stated in the case note, what is your reason for DAMA?

The phone call will be recorded via Call Recorder Apps for data review record, with verbal consent taken before recording. If patients agree for the interview but not agree for recording, data will be taken by jotting down the patient's phrases according to patient's cooperativity of rephrasing. The duration of the interview is estimated to be around 10 to 15 minutes. The data collection form (Appendix 4) will be filled in by the investigator immediately during or shortly after the phone call. Information will be taken from either patient or first-degree relatives if the patient is unavailable during the call. Contact with each patient will be attempted at least five times before labelling as 'unable to contact'.

For the reasons of DAMA, the immediate reason for DAMA will be extracted from case note, but if not mentioned or documented, the reason will be acquired via the phone call. Since open-ended questions will be used, the given reason will be documented first and later categorised by investigator into several groups, guided by several studies on

reasons of DAMA. (Hosseini et al., 2018; Ismail et al., 2016; Karimi et al., 2014; Shirani et al., 2010).

For **objective III**, a case-control method will be used to identify the associated factors of DAMA. For each of the selected DAMA cases in this study, an unmatched control group will be randomly selected from the register book from all zones in 1 DAMA: 2 Control ratio. All ED visit registry in the registration book during this study period will be numbered and using website www.randomizer.org, the non DAMA cases will be selected from register book. Data was then retrieved from case note only. No follow up call will be conducted for non DAMA group.

For **objective II and IV**, the selected DAMA patient and data presented in this study was from the similar cohort of randomised DAMA patient sample in the case-control group in objective II.

2.8.3 Data Entry

Data will be entered and analysed using Statistical Package for Social Science (SPSS) for Windows, version 24.0

2.8.4 Variables

- Age (years)
- Group (DAMA/non-DAMA)
- Citizenship (Malaysia/non-Malaysian)
- Length of stay in ED (hour)
- Gender (male/female)

- Place of residence (close/far from the hospital)
- Circadian variation (AM shift /PM shift/Night shift)
- Holiday factor (Weekdays, weekend/public Holidays)
- Triage zone (Green, Yellow, Red)
- Marital Status (Single, divorced or widowed/married)
- Diagnosis (Trauma/non-trauma)
- Type of payment (Personal/Insurance or GL)
- Attendance of registrar and/or specialist (ARS)

2.8.5 Statistical Analysis

- **Objective I:** prevalence of DAMA in ED Hospital USM will be reported as in frequency and percentages.
- **Objective II:** rate of seeking short term follow up care among DAMA patients to health facilities will be reported with frequency and percentages
- **Objective III:** for the characteristic of DAMA, continuous variable (e.g. age, length of stay in ED) were expressed as mean ± standard deviation. Categorical variables were expressed as number and percentages. For identification of the associated factors of DAMA, simple and multiple logistic regression will be used. Factors associated with DAMA are given in odds ratios with 95% confidence intervals (CI). All p-values <0.05 were considered statistically significant. Model selection for associated factors was done using forward and backward logistic regression and manual selection (p-value <0.25).

- **Objective IV:** Reasons for DAMA will be reported as frequency and percentages according to category and subcategory developed thematically post data collection.

2.8.6 Dummy Table

Objective I:

Prevalence of DAMA, Pr (%) = ___

Total Number of DAMA in ED during study period, *n* X 100 Total Number of Patients in ED during study period, P

Objective II:

Table 1: Rate of seeking short term follow up care

Rate of seeking Follow up	Disposition	n (%)	Passed away within 72 H	n (%)
Yes	Admit			
	Discharged			
No				
Unable to contact				

Objective III:

Table 2: Sociodemographic and characteristics of DAMA and non-DAMA patients

CHARACTERISTIC	DAMA			NON-DAMA		
	n (%)	Mean (SD)	p-Value	n (%)	Mean (SD)	p-Value
Age						
Length of stay in ED (hour)						
Gender Male Female						
Place of Residence Close Far						
Circadian Variation AM Shift PM Shift Night Shift						
Holiday factor Weekdays Public Holidays or weekends						
Triage zone Green Yellow Red						
Marital Status Single/divorced/widowed Married						

Diagnosis Trauma Non-trauma						
Type of Payment Personal Guarantee letter/insurance						
Attendance by Registrar or Specialist Attended by registrar or specialist Not attended by registrar or specialist						

Table 3: Multiple logistic regression table for associated factors of DAM

CHARACTERISTIC	**Adjusted Odds Ratio**		
	OR	**95% CI**	**p-Value**
Age			
Length of stay in ED (hour)			
Gender Male Female			
Place of Residence Close Far			
Circadian Variation AM Shift PM Shift Night Shift			
Holiday factor Weekdays Public Holidays or weekends			

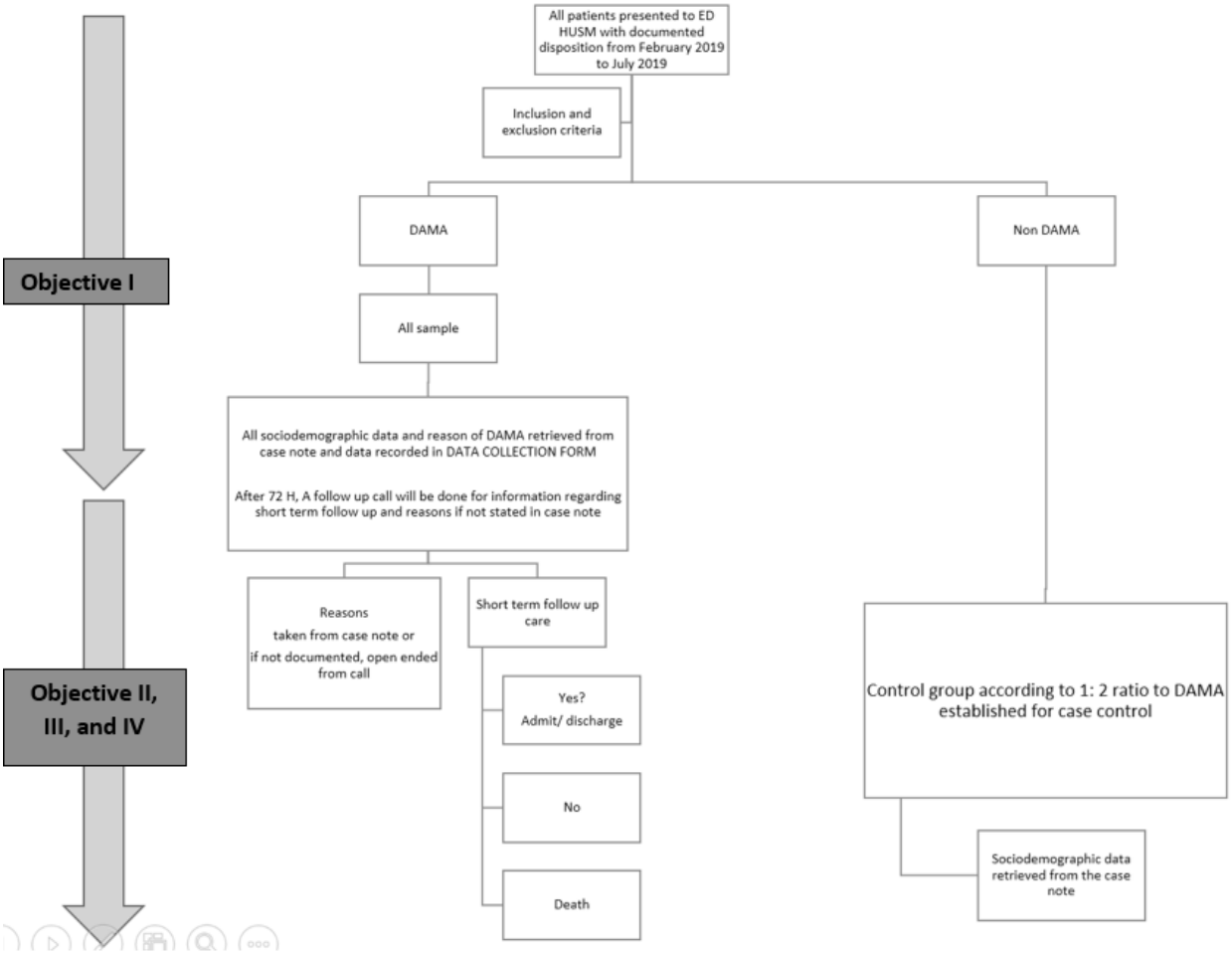
Triage zone Green Yellow Red			
Marital Status Single/divorced/widowed Married			
Diagnosis Trauma Non-trauma			
Type of Payment Personal Guarantee letter/insurance			
Attendance by Registrar or Specialist Attended by registrar or specialist Not attended by registrar or specialist			

Objective IV:

Table 4: Reasons for DAMA

Stated Reasons for DAMA	Subcategories	F (%)
Patients related reasons	(further subcategories will be developed based on data) e.g. enough satisfactory feeling	
Family-related reasons	(further subcategories will be developed based on data)	
Hospital -staff-related reasons	(further subcategories will be developed based on data)	
Hospital status and environment-related reasons	(further subcategories will be developed based on data)	
Treatment-related reasons	(further subcategories will be developed based on data)	
Others	Financial obligation	
	Logistic reasons	
	Other subcategories	

2.9 STUDY FLOW CHART



2.10 GANTT OF RESEARCH ACTIVITY MILESTONE

Project / Time	2019												2020											
	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D
1. Designing assessment tool			→	→	→																			
2. Data Collection						→	→	→																
3. Data Entry & Analysis								→	→	→	→	→	→	→	→									
5. Report Preparation															→	→	→	→	→	→	→			
6. Submission of Draft																					→	→	→	→

2.10.1 Milestone

- Data collection is expected to be completed by the end of August 2019
- Data entry and data analysis are expected to be completed by the end of February 2020.
- Report preparation is expected to be completed by the end of August 2020.
- Submission of the draft is expected to be done by December 2020.

2.11 ETHICALS OF STUDY

This study will be conducted in compliance with the ethical principle, as stated in the Declaration of Helsinki and Malaysian Good Clinical Practice Guideline. We have already obtained approval to conduct this study from the institutional ethics committee; Human Research Ethics Committee USM (HREC/JePEM) and the hospital management.

2.12 PRIVACY AND CONFIDENTIALITY

All forms are anonymous, and data will be entered into the SPSS software. The data involving the samples will be held confidential and only be accessible to investigators. The 'Call Recording Apps' application enables recording and saving to external devices. However, no auto-upload to any social media was enabled during the recording. Data protection is protected under the Data Confidential Plan by the service provider. Patient's right and confidential will not be jeopardised and will always be prioritised in this study.

2.13 CONFLICT OF INTEREST

The investigators declared that there is no conflict of interest with regard to this study.

2.14 PUBLICATION POLICY

No personal information will be disclosed, and subjects will not be identified when the findings of the study are published.

2.15 REFERENCES

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