



UNIVERSITI PUTRA MALAYSIA

***FACTORS CONTRIBUTING TO APPROPRIATENESS OF UTILISATION
AMONG ADULT PATIENTS ATTENDING EMERGENCY DEPARTMENT
HOSPITAL KUALA KUBU BHARU 2017***

ANTHONY NG TYNG RUEY

FPSK(M) 2017 20



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By

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**Dissertation Submitted to the Department of Community Health, Faculty of
Medicine and Health Sciences, Universiti Putra Malaysia, in Fulfilment of the
Requirements for the Degree of Master of Public Health**

August 2017

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August 2017

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Faculty : Medicine and Health Sciences

Introduction: Emergency and non- emergency utilisation at hospital emergency department is a common occurrence around the world as well in Malaysia. In Selangor, there had been a general increase in the numbers of patients seeking treatment at the emergency department. Such utilisation if inappropriate give rise to overcrowding, long waiting times and unnecessary usage of healthcare resources.

Objectives: To determine the level of appropriateness of utilisation by patients attending to Hospital Kuala Kubu Bharu emergency department and the factors contributing to it.

Methods: A cross sectional study utilising systematic random sampling were carried out at the emergency department of Hospital Kuala Kubu Bharu. Self-administered questionnaire was given to respondents at the emergency department. Descriptive and analytical statistics were derived from IBM Statistical Package for Social Science (SPSS) version 22.0, with a pre-determined $p < 0.05$ as significant value. Chi square and binomial logistic regression were used to determine the predictors of appropriateness of utilisation.

Results: The total number of respondents in this study were 771 (88.2%). The median age of respondents were 33 years of age (IQR $\pm 25^{\text{th}}$, 75^{th} ; 25, 42). Majority of the respondents were of Malay ethnicity (64.9%). The percentage of respondents comprised of female (55.9%) and male (44.1%) respectively. The results of chi-square test indicated that there were significant association between time of presentation ($p = 0.005$), 24-hours availability of the emergency department to respondents ($p = 0.014$) and employment status ($p = 0.024$). Using binomial logistic regression, the results further revealed that the odds of appropriateness in respondents to utilise the emergency department after office hours is 1.5 times more in comparison to after office hours (AOR=1.520, 95% CI: 1.126-2.052). Respondents are also more likely to utilise the emergency department due to its 24-hour availability compared to other facilities (AOR =2.851 95% CI: 1.276-6.375).

Conclusion: The level of appropriateness of utilisation at Emergency Department of Hospital Kuala Kubu Bharu is 72.2% appropriate. From the multivariate

analysis it reveals that, time of presentation and 24-hours availability of the emergency department were significantly associated with appropriateness of utilisation.

Keywords: Appropriateness of utilisation, emergency department, Hospital Kuala Kubu Bharu



Abstrak disertasi yang dikemukakan kepada Fakulti Perubatan dan Sains Kesihatan,
Universiti Putra Malaysia sebagai memenuhi keperluan untuk ijazah Sarjana Kesihatan
Awam

**FAKTOR PENYUMBANG KEPADA KESESUAIAN PENGGUNAAN
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Pengenalan : Penggunaan jabatan kecemasan untuk faktor kecemasan dan bukan kecemasan adalah satu kejadian yang lumrah bukan sahaja di Malaysia, malah di serata dunia. Di negeri Selangor, didapati penggunaan jabatan kecemasan untuk sebab bukan kecemasan kian meningkat. Ini akan membawa kepada masalah kesesakan, masa menunggu yang lama dan ketirisan dalam menggunakan sumber kesihatan, jika penggunaan adalah tidak bersesuaian.

Objektif : Bertujuan menentukan tahap kesesuaian dalam penggunaan oleh pesakit di Jabatan Kecemasan Hospital Kuala Kubu Bharu dan faktor penyumbanganya.

Metodologi : Satu kajian hirisan lintang, telah dilakukan di Jabatan Kecemasan Hospital Kuala Kubu Bharu, dimana instrumen soal-selidik berjenis tadbir sendiri dijalankan ke atas pesakit yang hadir di jabatan kecemasan. Statistik deskriptif dan analitikal kemudian diaplikasi dengan menggunakan modul IBM *Statistical Package for Social Science (SPSS)* versi 22.0 di mana $p < 0.05$ dianggap ketara. Chi berganda dan Regresi Logistik Binomial juga digunakan untuk menentukan ramalan perhubungan kesesuaian penggunaan.

Hasil Kajian : Jumlah responden yang terlibat dalam kajian ini adalah seramai 771 orang (88.1%). Umur median responden berusia 33 tahun dengan lingkungan ($IQR \pm 25^{th}, 75^{th}, 25, 42$). Hasil kajian menunjukkan majoriti responden adalah orang Melayu (64.9%). Nisbah peratus antara responden lelaki dan perempuan pula adalah (44.1%) dan (55.9%) masing-masing. Daripada hasil ujian chi berganda, ia

menunjukkan hubungan diantara masa penggunaan jabatan kecemasan oleh pesakit ($p=0.005$), masa beroperasi jabatan kecemasan 24-jam ($p=0.014$) dan status pekerjaan ($p=0.024$). Seterusnya, melalui data analisis regresi logistik, aplikasi menunjukkan kebarangkalian penggunaan responden selepas waktu pejabat adalah 1.5 kali (AOR=1.520, 95% CI: 1.126-2.052). Didapati juga responden memilih untuk menggunakan jabatan kecemasan berbanding fasiliti kesihatan yang lain (AOR =2.851 95% CI: 1.276-6.375) disebabkan masa beroperasi 24 jam setiap hari.

Kesimpulan : Daripada kajian didapati, Jabatan Kecemasan Kuala Kubu Bharu mempunyai tahap kesesuaian penggunaan pada (72.2%). Melalui mutivariat analisis juga, didapati sebab kedatangan jabatan kecemasan bersifat 24 jam dan masa penggunaan jabatan kecemasan oleh pesakit adalah faktor ketara yang menyumbang kepada kesesuaian penggunaan jabatan kecemasan.

Kata Kunci: Kesesuaian penggunaan, jabatan kecemasan, Hospital Kuala Kubu Bharu

ACKNOWLEDGEMENTS

My deepest and most sincere gratitude to my supervisor, Associate Professor Dr.Muhamad Hanafiah Juni, who had remained very dedicated and selflessly guided and assisted me literally through the tough and choppy waters to complete my research. Secondly, my utmost appreciation to my co-supervisor, Associate Professor Dato' Dr.Faisal Ibrahim for his guidance. Also, not forgetting my lecturers and colleagues for ideas given and shared. Lastly our parents and my wife for their patience, understanding and support through this research process.

I would take this opportunity to thank the Ministry of Health for giving me this opportunity to pursue postgraduate education at University Putra Malaysia.

I certify that a Dissertation Examination Committee has met on 3rd August 2017 to conduct the final examination of Anthony Ng Tyng Ruey on his dissertation entitled Factors Contributing to Appropriateness of Utilisation Among Adult Patients Attending Emergency Department Hospital Kuala Kubu Bharu 2017 in accordance with the Universities and University Colleges Act 1971 and the Constitution of the Universiti Putra Malaysia [P.U.(A) 106] 15 March 1998. The Committee recommends that the student be awarded the Master of Public Health.

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LIST OF ABBREVIATIONS

ATS	Australasian Triage Scale
CTAS	Canadian emergency department Triage and Acuity Scale
ED	Emergency Department
EMTS	Emergency Medicine and Trauma Service
ESI	Emergency Severity Index
G1	Green 1
G2	Green 2
G3	Green 3
G4	Green 4
GP	General Practitioner
HUSM	Hospital Universiti Sains Malaysia
HKKB	Hospital Kuala Kubu Bharu
K1M	Klinik 1 Malaysia
KKM	Kementerian Kesihatan Malaysia
MECC	Medical Emergency Coordinating Centre
MOH	Ministry of Health
MTS	Manchester Triage System
NMRR	National Medical Research Register
PCP	Primary Care Provider
PLUS	Projek Lebuhraya Utara Selatan



CHAPTER 1

INTRODUCTION

1.1 Background

An emergency department (ED) of a Hospital is a unique department. The first is its ability to deliver a full range of medical services to acutely ill or injured patients, regardless of the nature of the presenting complaint. The other characteristic of the ED is its accessibility; delivering care and service 24 hours per day, seven days per week, to all who seek it, regardless of their ability to pay (Richardson & Hwang, 2001).

Hospital emergency department (ED) attendances have increased significantly over the past several decades. There are a number of reasons that attributed to this surge; its accessibility and convenience, an ageing population, perceived need for investigations in a hospital setting, inappropriate attendances and the urgent nature of the visit (Anantharaman, 2008). From hospital and health services perspective, patients that come to hospitals with emergency condition should be cared for in a timely manner. However, the presence of large numbers of relatively non-emergency patients in EDs is an unexpected hindrance to the service. Such patients, fully alert and able to verbally demand the attention of medical and nursing staff, they tend to compete for the limited resources in an ED. Subsequently, this leads to delayed action and less time given where is due, to attend to the very sick and injured, ultimately compromising the care given (Che-Hung Tsai, Liang, & Pearson, 2010).

Across the globe in general, hospital emergency department was set-up to cater for patients who were financially stretched to consult a private practitioner or physician. However, this function gradually diminished and evolved towards ensuring adequate response to life-threatening emergencies, accidents and other forms of crisis when creation of social security systems, private or government backed insurance scheme and financial accessibility became more widely available (C Raina Elley, Pieta-Jo Randall, David Bratt, 2005). However, many individuals still continue to seek treatment at emergency departments with presentations that could have been easily resolved at the primary care level (Backman, Ann-Sofie, Blomqvist, Paul Lagerlund, Magdalena Carlsson-holm, Eva, Adami, Johanna, 2008).

Despite concerted efforts by different health providers across the globe with array of initiatives to redistribute and re-stratified 'primary care patients' according to the corresponding level of care, inappropriate attendees continues to affect efficient functioning of an emergency department valuable resources instead of

heading to a primary care provider (Dawoud, Ahmad, Alsharqi, & Al-Raddadi, 2016; Sempere-Selva et al., 2001).

In the past decades, many Emergency Departments (ED) have experienced a significant rise in the utilisation of their services, particularly by individuals with non-urgent health complaints (Daniels, 2008; Milbrett, P., & Halm, 2009). The issue of non-urgent ED utilisation has received considerable attention in healthcare literature, driven by the notion that such utilisation contributes to overcrowding, lengthy wait times, and decreased standards of care. (Bezzina, Smith, Cromwell, & Eagar, 2005; C Raina Elley, Pieta-Jo Randall, David Bratt, 2005).

A collective opinion from many reports is that ED overcrowding is a reflection of an underlying supply-and-demand mismatches that permeates the health care system (Derlet, Robert W and Richards, 2000). The issue of ED crowding first surfaced during the late 1980s and triggered concerns among healthcare professionals. Come the early 1990s, state and local governments were appointing task forces, and working committees to address the issue at hand supported by reports and position papers issued by professional associations (Higginson, 2012). It is certainly true that some portion of ED visits are for problems that are neither emergent nonurgent, and that could competently be handled in another setting. However, the characterization and quantification of these “nonurgent emergency visits” have proven to be complicated (Richardson & Hwang, 2001)

The Emergency and Trauma Services in Malaysia have shown marked development in the past 10 years; specialty level care is now available in almost every MOH Hospital and the scope and extent of emergency care, interventions and critical care monitoring have increased as well (Annual Report Ministry of Health, 2012).

District hospitals in Malaysia, like other district hospital all over the world, function as important gateway between primary and tertiary healthcare systems (Han et al, 2013). Kuala Kubu Bharu Hospital being one of the district hospitals in Selangor state, provides services for accidents and emergency, inpatients and outpatients including referrals from community and primary healthcare services (Ministry of Health Malaysia, 2012).

1.2 Problem Statement

In 2011, more than 7 million Malaysians sought treatment at Emergency Departments, a 5.4 % increase from previous year (Annual Report Ministry of Health 2011). The total number of non-emergency cases seen in Selangor was also the highest in Malaysia (14.7%) in 2012 (Annual Report Ministry of Health 2012)

The annual report by Selangor State Health Department 2010-2013, revealed an increasing trend in utilisation of ED. From 2012 to 2014 there is an increase of 5.3% in number of patients seeking treatment at all the government hospitals' ED in the state of Selangor. In HKKB there is also a rise of 26.2% from 2013 to 2014 in numbers of attendees at the Emergency Department, which is the highest among all non-urban district hospitals. (Selangor State Department of Health, 2014)

Interestingly, HKKB also recorded the highest amount of patients (90.22%) utilising Green Zone in 2014 in comparison to all the other government Hospitals in Selangor (Selangor State Department of Health, 2014). In 2014, utilisation of Red Zone and Yellow Zone of HKKB are (0.91%) and (8.87%) respectively. In a study done at Hospital Serdang, it was found that level of appropriateness of utilisation in green zone emergency department was 83.6% appropriate and 16.4% was inappropriate (Arinah WDS et al., 2016). In another study done at UKM medical centre, it was found that 62.1% of the attendees were non-critical (Wan Mohd Aminuddin, 2016).

Table 1.1 Patients attendance at HKKB according to Triage

Year	Red		Yellow		Green		Total
	n	%	n	%	n	%	
2014	447	0.91	4354	8.87	44288	90.22	49089
2015	541	1.25	5000	11.55	37764	87.20	43305

(Selangor State Department of Health, 2014)

Overcrowding in EDs is described in the Emergency Medicine literature as a detrimental public health problem because of its far-reaching consequences: degradation of the quality in patient's care resulting from prolonged waiting times, delays to diagnosis and treatment, and in treating seriously ill patients. It also leads to unnecessary diagnostic investigations, increased costs and patients' dissatisfaction (Bianco, Pileggi, & Angelillo, 2003). With reference to the above, overcrowding is also among one of the most serious issues hampering EDs in the developed world as well, and the government of United States has recognized inappropriate utilisation as contributing to overcrowding (Troxell, 2014).

1.3 Significance of study

The study will facilitate better understanding of health needs, which may in turn result in improvements to the quality and accessibility of healthcare services, for individuals that utilise ED inappropriately.

Hopefully, these would be concluded study can provide insights to formulate useful strategies and policies in the future, which inevitably are of benefit to the floor manager manning the Emergency Department of HKKB.

The findings may also spur further research on the topic to support the development of new models of service delivery that respond to the health needs of individuals requiring non-urgent or appropriate care for our country. The study also hopes to deal with issue such as increasing workload at the ED for health staff and how to provide suggestions in view of the utilisation manner. And provide a better understanding into ED utilisation of a district hospital.

1.4 Research questions

- 1.4.1 What is the level of appropriateness of utilisation at Emergency Department Hospital Kuala Kubu Bharu?
- 1.4.2 What are the factors influencing appropriateness of utilisation of emergency department Hospital Kuala Kubu Bharu?
- 1.4.3 What are the predictors of appropriateness of utilisation at Emergency Department Hospital Kuala Kubu Bharu?

1.5 Objectives

1.5.1 General Objective

The general objective of the study is to determine the appropriateness of utilisation among patients attending emergency Department of Hospital Kuala Kubu Bharu and factors influencing its.

1.5.2 Specific Objectives

- I. To assess the level of appropriateness of utilisation at Emergency Department Hospital Kuala Kubu Bharu.
- II. To determine the factors (sociodemographic, patients' perceptions of emergency department, patient's knowledge on roles and functions of emergency department, time of presentation and reason for preferring emergency department) influencing appropriateness of utilisation at Emergency Department, Hospital Kuala Kubu Bharu.

- III. To study the association between factors (sociodemographic, patients' perceptions of emergency department, patient's knowledge on roles and functions of emergency department, time of presentation and reason for preferring emergency department) and level of appropriateness of utilisation at Emergency Department, Hospital Kuala Kubu Bharu.
- IV. To determine the predictors of appropriateness of utilisation at Emergency Department, Hospital Kuala Kubu Bharu.

1.6 Research Hypothesis

H₁: There is significant association between factors (sociodemographic, patients' perceptions of emergency department, patients' knowledge on roles and functions of emergency department, time of presentation and reason for preferring emergency department) and its appropriateness of utilisation of Emergency Department Hospital Kuala Kubu Bharu

H₂: There are predictors of appropriateness of utilisation of Emergency Department, Hospital Kuala Kubu Bharu

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