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# AVERAGE WAITING TIME AT THE EMERGENCY DEPARTMENT AND ITS RELATION WITH INAPPROPRIATE HEALTH-SEEKING BEHAVIOUR AT AL-AHSA CITY, KINGDOM OF SAUDI ARABIA 2017-2018

Medicine

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## ABSTRACT

Over the years, the number of visits to emergency departments(ED) increased, resulted in ED crowding and increased waiting times for minor as well severe problems, a cross-sectional survey was done to investigate this issue at the ERs of the major hospitals in Al-Ahsa,April 2018. This study aims to analyse the association between inappropriate use of ED services & increasing the average waiting time,to identify the reasons motivating misuse of the ED And assess patients' knowledge of primary health care (PHC). Interview with 400 patients shows that the average waiting time was 17 minutes ± 22 SD for urgent case . A high proportion of patients are regularly visiting the ED three to four times/ year .In this study, we tried to find the factors that let these patients preferring the ER services even if they know that their cases can be treated in PHCs, limited facilities and resources was the most affecting factor.

Most of the participant were generally aware of PHCs although 25% were not aware of the services provided by these centres.

## KEYWORDS

Average Waiting Time At Er, Inappropriate Health Seeking Behaviour, Al-ahsa Hospital, Mch, Saudi Arabia.

## Chapter 1: Introduction

### Background:

Over the years, the number of visits to emergency departments (EDs) increased resulted in ED crowding and increased waiting times for minor and sometimes serious problems (Hing & Bhuiya, 2012; United States Government Accountability Office, 2009; Wilper et al., 2008).

Emergency department crowding is a significant problem that is getting worse (Lambe et al., 2003).

Actually, a high proportion of patients with the non-urgent condition had not tried to visit a doctor at an outpatient clinic prior to attending the ER (Dawoud, Ahmad, Alsharqi, & Al-Raddadi, 2016). Both non-urgent and urgent conditions reported having ever left the ER without receiving treatment. The main reason, as reported was because of overcrowding (Dawoud et al., 2016).

Furthermore, Continuity of care could be compromised when patients use the ED instead of primary health care settings, particularly for those with chronic diseases or who need preventive strategies(Dawoud et al., 2016)

The inappropriate use of these services makes it difficult to ensure access for real emergency cases, decreases the readiness for care, reducing the quality of emergency services, and raises overall costs (Billings, Parikh, & Mijanovich, 2000; M. Carret, Fassa, & Kawachi, 2007; Oktay, Cete, Eray, Pekdemir, & Gunerli, 2003; Shah, Shah, & Jaafar, 1996; Stein, Harzheim, Costa, Busnello, & Rodrigues, 2002). The inappropriate use of emergency department (ED) service by patients with non-urgent health problems is a worldwide problem(Afilalo et al., 2008; AL, 1994; Bezzina, Smith, Cromwell, & Eagar, 2005; M. Carret et al., 2007; M. L. V. Carret, Fassa, & Domingues, 2009; Koziol-McLain, Price, Weiss, Quinn, & Honigman, 2000; Lang et al., 1997; Lee et al., 2000; Northington, Brice, & Zou, 2005; Oktay et al., 2003; Porro, Folli, & Monzani, 2013; Redstone, Vancura, Barry, & Kutner, 2008; Sempere-Selva, Peiró, Sendra-Pina, Martínez-Espín, & López-Aguilera, 2001; Shah et al., 1996).

Non-urgent (NU) emergency department (ED) use is at the primacy of medico-political agendas. This population should be better understood with respect to their reasons and characteristics for not try to visit primary Healthcare (PHCs) instead of EDs before policy changes are implemented(Afilalo et al., 2008).

According to the Canadian national guidelines (Bakarman & K. Njaifan, 2014)which are followed by Saudi Ministry of Health (MOH) hospitals, patients must follow for examination, tests, and treatment in the PHCS and refer in case of emergency (Dawoud et al., 2016).

This study aims to analyze the association between inappropriate use of emergency department services & increasing the average waiting time.It also aims to identify the reasons motivating misuse of the ED. and assess patients' knowledge of primary healthcare. There are several reasons, which makes patients exceed the primary healthcare system and visit the ED.

## Chapter 2: methodology

### Material Studied

### 2.1 Setting

This study was conducted at the ED of Al-Ahsa MOH hospitals (King Fahd hospital, Prince Saud bin Jalawi hospital, and pediatric MCH ), Alahsa, Kingdom of Saudi Arabia.

### 2.2 Design

This study was an observational, analytical cross-sectional study.

### 2.2.1 Sample

The sample was collected through simple random sampling to include patients who presented to the ED of the hospitals mentioned above irrespective of whether the cases are urgent or non-urgent.

### 2.2.2 Sample Size

The calculated sample size for this study was 400 patients.

### Inclusion and Exclusion Criteria

### Inclusion criteria

All Saudi patient (male – female – child) attending MOH ED (KFH, Prince Saud bin Jalawi, pediatric MCH) Al-Ahsa region, Eastern province, Saudi Arabia.

### Exclusion criteria:

- Emergency cases.
- Pregnant.

### 2.3 Data Collection

- Waiting time interval was measure started from the time of patient

arrival to ED to first contact with a physician or nurse practitioner.
- All cases were categorised as urgent and non-urgent according to the Canadian classification for ED attendance (table 1).
- A structured questionnaire was used to collect the data through interviews which are taken by trained physicians.
- The questionnaire included questions that assessed demographic data, factors that predicted the over-utilisation of the emergency room (ED), and patients' knowledge about primary health care services. The questionnaire identified many factors. This includes age, sex, marital status, nationality, job, educational background, health status, reasons for visiting the emergency room, number of ED visits during the year, as well as knowledge about primary health care services and healthcare facilities. It also assessed the patients' knowledge about when to consult an ER doctor and how to access the ED.

This questionnaire was used previously for a similar research article which was published in Global Journal of Health Science at 15 April 2015 (Utilization of the Emergency Department and Predicting Factors Associated With Its Use at the Saudi Ministry of Health General Hospitals) and it is a pre-tested and validated questionnaire (Dawoud et al., 2016)

### 2.4 Data Analysis

These data were analysed using the Statistical Package for the Social Sciences (SPSS Inc., Chicago, IL, USA), version 17.0. Descriptive statistics were performed for all variables. The chi-square was used in the analysis of our data to assess the relationship between categorical variables, while the independent t-test and ANOVA test were used to compare group means for continuous variables. Statistical significance was set at the 0.05 alpha level.

### 2.5 Ethical Consideration

- Permission to conduct this study was taken by the ethics research committees of King Fahd Hospital Alahsa.
- Informed consent was taken from the participants before their inclusion in this study.
- The consent form, which explained the purpose of this study, was included in the questionnaire.

The Mean waiting time in the ED of Al-Ahsa hospital found to be 17 minutes ± 22 SD for urgent case and 28 minutes ± 26 SD for non-urgent cases. There was a significant difference between urgent and not urgent in the mean waiting time (P-value = 0.0001) in favour of not urgent (Table 1).

There were significant differences in the mean waiting time between the three hospitals, in favour of Prince Saud bin Jalawi hospital then King Fahad hospital then MCH hospital.

Of the 400 cases, 34.75% were non-urgent. Prince Saud bin Jalawi Hospital received a significantly high number of non-urgent ER cases as compared with the other two hospitals.

A high proportion of patient (66%) did not attempt to seek the help from other health services before coming to the ER, the urgency of their conditions and dissatisfaction with the treatment provided in other healthcare organisations found to be the most numerous factors.

**TABLE 1. Difference between Urgent and not urgent in waiting time:**

| | Emergency status | N | Mean | SD | t | DF | P value |
|---|---|---|---|---|---|---|---|
| Waiting Time (by minutes) | Urgent | 261 | 17.33 | 22.186 | -4.525 | 398 | 0.0001 |
| | Not urgent | 139 | 28.66 | 26.712 | | | |

| Name of hospital | N | Mean | SD. Deviation | SD. Error |
|---|---|---|---|---|
| King Fahad | 134 | 19.66 | 26.547 | 2.293 |
| Prince Saud bin Jalawi | 132 | 33.07 | 26.588 | 2.314 |
| MCH | 134 | 11.25 | 12.130 | 1.048 |
| **Total** | **400** | **21.27** | **24.428** | **1.221** |

There was a significantly high proportion of patients visited the ER three to four times a year (48.2%) for non-urgent health issues (P=0.0001). A significantly high proportion (45.3%) of non-urgent cases not having a profile in the hospital (P=0.0001) (Table 2).

A significantly high proportion of patients -urgent and non-urgent- not having a profile in the hospital, a regular visitor to the emergency department, and about 20% of patients they are complaining for a month or more before they presented to the E.D.

**TABLE 2 . Relationship between emergency status and patients' experience at the emergency room:**

| Question | Answer | emergency status | | Total | p-value |
|---|---|---|---|---|---|
| | | Not urgent | Urgent | | |
| Do you have a profile in hospital | Yes | 27.8% | 174 72.2% | 241 100% | 0.0001 |
| | No | 45.3% | 87 54.7% | 159 100% | |
| Since when are you suffering from your problem | Suddenly | 53 38.97% | 83 61.03% | 136 100% | 0.115 |
| | since 1 - 2 days | 35 25.93% | 100 74.07% | 135 100% | |
| | since 1 - 2 weeks | 29 39.19% | 45 60.81% | 74 100% | |
| | Almost a month | 7 46.67% | 8 53.33% | 15 100% | |
| | > a month | 15 37.50% | 25 62.5% | 40 100% | |
| How many times have you come to the ER during the year? | Frequently | 12 15.0% | 68 85.0% | 80 100% | 0.0001 |
| | From 1 - 2 months | 7 29.17% | 17 70.83% | 24 100% | |
| | 3 - 4 months | 27 48.21% | 29 51.79% | 56 100% | |
| | 6 - 12 months | 32 41.03% | 46 58.97% | 78 100% | |
| | Rarely | 61 37.65% | 101 62.35% | 162 100% | |

Of the patients who consulted at the ED, 338 (84.5%) had never been denied services at the E.D although 116 cases were not emergencies. However, these results did not reach a statistical significance.

A hundred and sixty-five patients reported that they had the option to visit outpatient clinic .however 86 patients with non-urgent conditions admitted that they got better quality services at the ER as compared to the treatment, which they received at clinics. There was a significant relationship ($p<0.05$) between utilising the PHCs services and emergency status.

One hundred and fifty patient they would go to the emergency department even if they know that primary health-care centres could deal with their cases, and significantly, a high proportion was non-urgent status . Limited services and resources, Limited working hours, dissatisfaction with the treatment provided, Lack of experience among the medical staff, mistrust of health centres, Lack of knowledge on health centers and lack of effective diagnosis was the order for the frequency of the factors for not dealing with the primary health care centers although the p-value was significant favoring the null hypothesis (Figure1).

Lack of emergency care facilities at the primary care centres shown at this study to be a significant factor for emergency department preference.

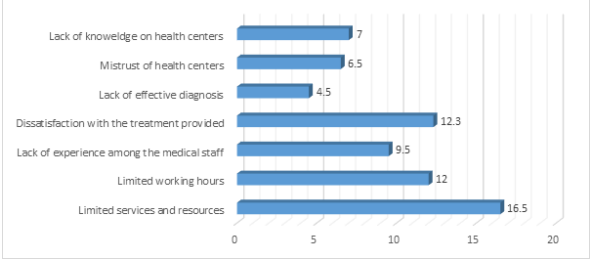


**FIGURE 1. Reasons why patients visiting the emergency room instead of primary healthcare centres**

Ninety-seven per cent of the patients were generally aware of PHCCs although some were not aware of the services provided by these centres.

There is a significant relationship between emergency status and patients' awareness of primary health care centres (p-value <0.01).

Most patient (80%) was satisfied with the services provided to them in the emergency department .and higher proportion(64%) not waiting for one hour whether their cases was urgent or not.

Non-satisfaction to the services provided by the emergency department more represented by urgent cases (p-value 0.01). Moreover, 75% of those who are waiting for 3 hours was urgent cases (p-value 0.004).

Slow response of doctors, lack of medical staff and late in patient receiving was the most Problems Encountered by Patients at the Emergency Room.

**Chapter 4: DISCUSSION**

Analysis of our data showed that the non-urgent cases were over-using the emergency department services at Al-Ahsa hospitals.

Although, in general, it was almost 35% were classified by the triage nurses to be non-urgent. In comparison to the non-urgent outside the kingdom where it reaches the half (52%)(Tsai, Liang, & Pearson, 2010). Also, inside the kingdom in the western region (53%) (Dawoud et al., 2016). However, the frequency of non-urgent cases was higher at prince Saud bin Jalawi hospital as compared with KFH and MCH pediatric hospital (56%,25% and 22% respectively ).

This study shows that the average waiting time at ER Al-Ahsa was 17 minutes ± 22 SD for urgent case and 28 minutes ± 26 SD for non-urgent cases, although there was a difference in the mean waiting time between the three hospitals (table 12), in comparison to a study done in US, the mean waiting time at emergency departments was 58 minutes (Hing & Bhuiya, 2012). And compared to the database in united states the average waiting time 16 minutes – 46 minutes (Medicare & Services, 2014) ,this time was counted by a trained physician since the time of arrival written in ER paper to the time the patient seen by the first physician. By the other way during the interview when the patients asked if they are always suffering from a long waiting time when they are coming to the ER 64% patients not waiting for one hour whether their status was urgent or not, although 75% from those who are waiting for three hours was urgent cases. The difference between the subjective and objective waiting time may be explained in many ways including the time of data collection was less congested or the misunderstanding of patients to the ER processes.

Known that High proportion of patients are regularly visiting the ER three to four times / year (Dawoud et al., 2016) and in this study, almost half of them was non-urgent cases. Furthermore, 40% of patients they do not have a profile in the hospital nevertheless that about 14% was suffering from their complain for a month or more, which give them the option of outpatient clinic treatment. Additionally, about half from the 400 patients, they reported not have the option to visit the PHCS when they become sick, while 70% from those who are utilising the PHCS services they are visiting the ER for urgent status. In addition 37% of patients they would go to the ER even if they know that their cases can be treated in PHCs.

In this study, we tried to find the factors that let these patients preferring the ER services even if they know that their cases can be treated in primary health care centres. Limited facilities and resources, dissatisfaction with the treatment provided and limited working hours was the most frequent factors shown in this study that reported by a valuable percent of non-urgent cases but the result was insignificant.

Lack of emergency care facilities at the primary care centres shown at this study to be the most significant factor for emergency department preference.

The visitors of the Emergency department constitute a diverse population. Some visitors might seek the ER for real or visible urgent cases, while others may congest the ER services due to preference, habit or lack of awareness about the difference between the principle of primary health care centres, the outpatient clinics and the emergency department services(Dawoud et al., 2016). Our data reveals that most of the visitor were generally aware of PHCCs although 25% were not aware of the services provided by these centres. In fact, a high proportion of patients was satisfied and getting the treatment in the ER as they expected. However, 52% from the 81 patients who are not satisfied with the treatment provided to them in the ER was classified as urgent cases. This may be reported due to over congestion of the ER by non-urgent cases, which make the treatment less than they expected, poor clinical triaging, leading to a long time to see a doctor for two or three hours, which is more than the time limit for urgent cases in Canadian guidelines.(Elkum, Barrett, & Al-Omran, 2011; Murray, Bullard, & Grafstein, 2004)

**Study strength:**

No similar study was done in Al-Ahsa region. It was conducted in the ED of a major hospital in Al-Ahsa. The data was collected by interview of trained physicians.

**Study limitations:**

This is a cross-section study, where the data was collected in limited time, which affect the accuracy of the average waiting time, is variable between months

**Study implication:**

The result of this study can help in the quality improvement of health care services, which improve the public health and satisfaction.

Chapter 5: Conclusion and Recommendation

Crowding in the emergency department has become a widespread problem in the kingdom of Saudi Arabia. The study explores an association between inappropriate use of emergency department services and an increase in the average waiting time and identifies the reasons motivating misuse of the emergency department.

According to data analysis of this study that collected from (King Fahd hospital, Prince Saud bin Jalawi hospital, and pediatric MCH), 34.75% of the sample were non-urgent, and Prince Saud bin Jalawi Hospital received a significantly high number of non-urgent ER cases.

The study shows that the average waiting time at ED in Alahsa was 17 minutes, and there was a significant difference between urgent and non-urgent in the mean waiting time in favour of not urgent cases.

Most patients were not waiting for one hour whether their status was urgent or not, although 75% from those who are waiting for three hours was urgent cases.

There were significant differences in the mean waiting time between the three hospitals, in favour of Prince Saud bin Jalawi hospital.

Most patients who visited the ER were single, middle age between (16 - 40) low income and low education. Most of the patients regularly visiting the ED three to four times / year and in this study, almost half of them were non-urgent cases.

A significantly higher proportion of patients with non-urgent conditions had experienced symptoms of one to two days duration; about 14% was suffering from the complaint for a month or more which give them the option of outpatient clinic treatment.

Patients with urgent and non-urgent conditions admitted that they got better quality services at the ER as compared to the treatment they received at clinics, and, a high proportion of patients was satisfied and getting the treatment in the ER as they expected.

A considerable proportion of patient they would go to the emergency department even if they know that primary health-care centres could deal with their cases, and significantly, a high proportion was non-urgent status.

Most causes enforced patients to deter from consulting a primary physician before seeking emergency care is Limited services and resources at PHCCs.

Most of the visitor were generally aware of PHCCs although 25% were not aware of the services provided by these centres, and overall that there is significant leakage of knowledge if there are emergency services in PHCCs.

Based on the study findings, the following recommendations are suggested:

**On the patients level:**

Educate the patients about healthcare setting in PHC and ED, and explain the services provided in PHCCs. Educate the patients about the importance of continuous care that is provided in PHCCs. Clarify the emergency services, and effect of crowding caused by non-urgent cases in ED, and that all patients who present to an ED must receive a medical screening examination, and that is time, effort, cost consuming and lead to delay in taking care of urgent and crisis case.

**On the ED level:**

Apply strict policy in the ED for non-urgent cases and direct the patient to receive services in PHCCs. Increase the quantity of employee in the ED. Increase coordinated efforts between emergency physicians, on-call specialists, emergency nurses, other health professionals to increase the quality of services and decrease the average waiting time.
On the PHC level:

Support the PHCCs with urgent care services and qualified employees that can deal with urgent cases. Increase the resources in PHCCs that can help in effective investigations and management.

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