

Utilization of emergency services in a community hospital

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ABSTRACT

Objective: Over utilization of emergency room services by patients with non-urgent complaints is a global problem. It results in a waste of resources, stress among the emergency room staff and an increase in waiting time for patients requiring attention. This study was carried out to establish the extent of inappropriate emergency room attendance in a Saudi community.

Methods: Data was collected from the emergency room register, regarding the age, sex, presenting complaints, time of presentation and disposal of patients, from January 1st 1999 to March 31st 1999 at Al-Kharj Military Hospital, Al-Kharj, Kingdom of Saudi Arabia. Patients were classified in different categories according to the triage criteria of the hospital. EPI-INFO statistical software was used for calculating χ^2 and p values.

Results: Among the 3928 patients, 2183 (55%) were males and 1745 (44.4%) were females, while 2335 (59.4%) of the patients had primary care or non-urgent problems. In both males and females categories, 21% of the patients had respiratory tract infection followed by miscellaneous complaints like mild conjunctivitis, allergic

rash, rescription for medications, minor burns (500, 12.7%, $\chi^2 = 97.49$, $p < 0.00001$), gastrointestinal tract problems (434, 11%, $\chi^2 = 146.55$, $p < 0.00001$) and aches and pains (304, 7.7%, $\chi^2 = 283.39$, $p < 0.00001$). In male and female categories the 2nd most common complaints were trauma (487, 22.3%) and obstetrics and gynecological problems (325, 18.6%). The majority of the patients, 1806 or 46%, attended the emergency room during night shift (2300 hours-0700 hours). Referral rates for male and female patients were 211 (9.6%) and 331 (18.9%).

Conclusion: Similar to the findings of other nations, inappropriate utilization of the emergency room is a big problem in the Saudi community. The majority of the patients come with minor self-limiting complaints. Maximum rush was seen at night time. There is a need for health education of such groups of patients as well as finding alternative solutions.

Keywords: Emergency room, inappropriate use, adult.

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Inappropriate attendance in the accident and emergency room (ER) is a big problem all over the world. Of the 15 million people annually attending the 227 accident and emergency departments in Britain,¹ very few are really sick. The exact figure for inappropriate attendees is very variable in different settings ranging from 30%-70%.²⁻⁵ Inappropriate attendees increase the waiting time of other patients and the workload of the emergency department considerably. They create anxiety in the staff and cause stress to deserving patients. Usually they are the less ill and therefore they are more able to create fuss when wanting attention. Quite often all

they require is sick leave. There is a need for devising some kind of sieving system for non-urgent patients so that the care of patients really needing emergency treatment is not compromised. The objective of this study is to find out the pattern of attendance and use of the ER by the adult patients in the community.

Methods. This cross sectional study was conducted by examining the ER register for all patients, above 12 years, attending the ER during the period of January-March 1999. Details were taken

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Table 1 - Male patients attendance pattern in different categories by age group.

Categories	Age in years (y)					Total (%)
	13-18 y	19-34 y	35-64 y	65-74 y	>75 y	
Category 1			39	25	23	87 (3.9)
Category 2	15	34	3	14	5	71 (3.3)
Category 3	118	224	136	26	22	526 (24.0)
Category 4	61	136	56	12	6	271 (12.5)
Category 5	153	582	408	47	38	1228 (56.3)
Total	347	976	642	124	94	2183
y - years						

for patients regarding the time of registration, age, presenting complaints, diagnosis and final disposal. The patients were referred to the specialty urgently and then either admitted or discharged. Patients were grouped according to the following age groups 13-18 years, 19-34 years, 35-64 years, 65-74 years and 75 years and above. The sieving criterion of the hospital was used to classify the patients into different categories. Category one patients should be seen immediately, category 2 urgent patients should be seen within 15-30 minutes, category 3 semi-urgent patients needs to be seen within 30-60 minutes, category 4 (blue, non-urgent) patients can be delayed and category 5 patients should be seen in the primary care department. EPI-INFO statistical software was used for calculating χ^2 and p values. P values of < 0.05 was taken as significant.

Results. The data showed that a total of 3928 patients attended the ER department during the period of January-March 1999, significantly more

males attending 2183 (55%, $\chi^2=591.24$, $p< 0.00001$) than females 1745 (44.4%). Of the total patients 2335 (59.4%) were categorized as primary care patients (category 5). Detailed pattern of patient's allocation to different categories is shown in **Tables 1 and 2**. The 6 most common presenting complaints for male and female patients are shown in **Table 3**. Patients with presenting complaint of respiratory tract infection were significantly more than patients with miscellaneous complaints in category 5 like mild conjunctivitis, allergic rash, represcription for medications, minor burns, 500 (12.7%), ($\chi^2=97.49$, $p<0.00001$), gastrointestinal tract problems, 434 (11%), ($\chi^2= 146.55$, $p>0.00001$), aches and pains, 304 (7.7%), ($\chi^2 =283.39$, $p<0.00001$) and the patients who did not wait to be seen, 243 (6.1%), ($\chi^2=369.98$, $p< 0.00001$). Pattern of attendance was similar in both males and females categories, according to the time of presentation (**Table 4**). Patients attendance was significantly higher during the night shift, namely from 2300-0700 hours, as compared to the

Table 2 - Females patients attendance pattern in different categories by age group.

Categories	Age in years (y)					Total (%)
	13-18 y	19-34 y	35-64 y	65-74 y	>75 y	
Category 1			24	11	6	41 (2.3)
Category 2	26	94	15	7	5	147 (8.5)
Category 3	41	171	95	22	14	343 (19.6)
Category 4	22	39	36	8	2	107 (6.1)
Category 5	121	492	451	34	9	1107 (63.5)
Total	210	796	621	82	36	1745
y - years						

Table 3 - Most common presenting complaints of male and female patients.

Presenting complaint	Male patients N (%)	Female patients N (%)	Total
Respiratory tract problems	497 (22.7)	331 (18.9)	828 (20.8)
Trauma	487 (22.3)	132 (7.5)	619 (14.9)
Miscellaneous minor problems	284 (13.0)	216 (12.3)	500 (12.6)
Gastrointestinal problems	192 (8.8)	242 (13.8)	434 (11.3)
Obstetrics and Gynecological problems		325 (8.3)	325 (8.3)
Aches and pains	175 (8.0)	129 (7.3)	304 (7.6)
Did not wait	129 (5.9)	114 (6.5)	243 (6.2)
N - number			

morning shift, namely from 0700-1500 hours. A total of 331 (18.9%) female patients were referred to specialties, which was significantly more than male patients 211 (9.6%) ($\chi^2=70.56$, $p<0.00001$). Admissions for female patients were 212 (12.1%) as compared to 113 (5.1%) admissions for male patients. Among the female patients, 60 (3.4%) were given outpatient clinics appointments and 56 (3.2%) were discharged home. Forty-nine (2.2%) male patients were given outpatient clinics appointments and 47 (2.1%) were sent home.

Discussion. The Al-Kharj Military Hospital covers a mixed rural urban, population of approximately 100,000. The eligible population is military personnel and military factory workers. The primary care department of the hospital is open from 0800 hours to 2330 hours 7 days a week. During primary care working hours only emergency cases are seen in ER and patients with primary care problems are sieved through primary care clinics. Patients are triaged according to the sieving criteria of the hospital. The greater attendance for male patients, can be due to the fact that males are more mobile in the community due to the social and cultural norms, the same justification can be given for the significantly higher number of female patients

(1107, 63.4%, $\chi^2 =20.77$, $p<0.00001$) attending at night time in the ER with primary care problems, as during the day time male members are busy working or studying. The data had shown that 2335 patients (59.4%) had primary care problems. This rate is similar to the rate of 61% of patients with non-urgent problems visiting the ER in Kuwait.⁶ This is higher than the figures reported in the West Medical Center in Australia⁷ 40%-50% and Huddinge Hospital, Stockholm 27%.⁸ Detailed analysis has shown that both in male and female categories the majority of the patients were in the age group of 19-64 years, 1618 (74.1%) were males and 1417 (81.2%) were females. The inappropriate attendance for these 2 groups was 85% and 80.6%, showing that most of the genuine ER cases were below 19 years and above 65 years. Analysis of the 6 most common presenting complaints showed that 5 of them were in category 5 which must be seen in primary care.

Health education on the self-limiting nature of these illnesses as well as education about the proper use of ER and primary care can help reduce inappropriate visits.^{9,10} Studies have shown that most of these unnecessary visits are by the minority of patients and that targeted education of this group of patients can also be useful.¹¹ Most of the patients with primary care problems presented in ER during

Table 4 - Patients attendance by the time of presentation

Time of Presentation	Male patients N (%)	Female patients N (%)	Total
0700 - 1500 hours	493 (22.6)	387 (22.1)	880 (22.3)
1500 - 2300 hours	726 (33.2)	516 (29.6)	1242 (31.4)
2300 - 0700 hours	964 (44.2)	842 (48.3)	1806 (46.5)
N - number			

night shift when there is only one doctor working in ER. A solution for this problem can be a triage system and patients with non-urgent problems are to be seen in primary care next morning. However, this is limited by the non-availability of a universally agreed and safe triage system.^{12,13} Additional factors present in the community which increase the inappropriate ER utilization are low literacy rate and the social habit of sleeping very late especially during vacation season. Studies have shown that the appointment of a general practitioner in ER can reduce the cost of care because of less investigations and specialty referrals by general practitioners as compared to ER doctors.^{14,15} However, this increases the number of patients visiting ER with primary care problems, resulting in increased waiting time for urgent cases.¹⁶ Significantly more referral and admissions were for female patients due to obstetric problems such as various forms of abortions, premature labor, reduced fetal movements and others. The study shows a high number of inappropriate ER attendees in the community especially at night time. Eighty percent of inappropriate attendance was for 20-65 years old patients. Targeted health education for this group with alteration of time of primary care services to suit the needs of lifestyle can be a possible solution. More detailed study is required to look into the specific patients related factors responsible for the overuse of ER services in the community.

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