

Awareness and Utilisation of Primary Healthcare to Reduce Emergency Department Overcrowding in Saudi Arabia

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Abstract—Background: Patients seeking emergency department (ED) care for non-acute conditions are a major contributor to ED overcrowding, which results in longer wait times.

Method: This was a cross-sectional study, conducted using an online survey among the Saudi population to assess their awareness about primary healthcare clinics (PHCCs) and urgent care clinics (UCCs), their role, and their scope of practice.

Results: A total of 565 participants were included in this study. Most of the respondents (81.1%) reported lengthy waiting times in the ED. Moreover, most (81.6%) stated that they had never visited a family doctor, yet they (92.6%) favoured having one for follow-up care. Close to half of the participants (50.3%) reported attending PHCCs without an appointment, and the majority of them (69.2%) said that PHCCs were overcrowded. Finally, most participants (92.4%) had not heard about UCCs.

Conclusion: ED overcrowding and prolonged waiting times remain a public concern. PHCCs and UCCs are underutilised, and this is attributed to the lack of awareness about their scope and their services.

Index Terms—awareness, emergency department, primary healthcare clinic, overcrowding.

I. INTRODUCTION

The term “emergency department (ED) overcrowding” refers to a situation in which the demand for emergency services exceeds the capacity of nurses and physicians to deliver appropriate care promptly [1]. Globally, patients seeking care for

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non-acute conditions lead to ED overcrowding, resulting in longer wait times for medical intervention regardless of severity [2]. This may lead to patient dissatisfaction and a higher risk of death, and contribute to higher health system costs [3, 4].

ED crowding has been identified as a problem that occurs in most developed countries, and is described as a worldwide public health problem [5]. Some of the increased demand is related to patients with primary care problems who use emergency department settings to access care [6], although a large proportion of those patients (10%–60%) can be managed using lower-acuity care services [7].

A recent review of various studies identified the main reasons for ED and urgent care clinic (UCC) attendance, which included a lack of access to primary care; perceptions of urgency or anxiety; recommendations from friends, family, or healthcare professionals; and convenience in terms of better opening hours or being closer to home than alternatives [8].

One solution to the problem is to improve guidance and enhance access to primary care services. Primary care physicians are not limited to a specific disease; they are trained to manage any kind of illness through a holistic, patient-centred approach and in connection with every other medical speciality [9].

In Saudi Arabia, a study conducted at an urgent care clinic found that most participants were unaware of urgent care and the service that can be delivered [5]. Meanwhile, studies showed a positive impact of PHCC on ED length of stay, patient satisfaction, patient safety, and departure before completion of service [10]. Also in Saudi Arabia, studies showed a significant association between overcrowding and length of stay [11].

The main objective of our study is to investigate the potential of PHCC and urgent care to improve ED crowding and to explore the importance of PHCCs as an alternative to treat mild cases that do not constitute a emergency. We also aim to explore the awareness of the general population of the role of PHCCs and UCCs.

II. METHODOLOGY

This was a cross-sectional study conducted in Saudi Arabia in September 2022. The authors generated a questionnaire consisting of seven parts; the first presented the sociodemographic characteristics, including the participants' age, gender, region, educational level, and health status. The other parts included questions about the frequency of ED visits, perception towards ED waiting time, family physician's follow-up, PHCC accessibility, perception towards the primary healthcare scope of practice, and perception towards UCCs. An initial pilot study was conducted; however, a reliability analysis was not carried out.

This study included adult male and female participants of the general Saudi population who agreed to complete the survey. We excluded incomplete surveys and assumed that only adult participants with internet connections and smart devices, and who are mentally competent, would be able to answer the questions. We sought a convenience sample, which we recruited by distributing the survey using the snowball sampling method. Distribution of the survey involved various social media platforms.

We estimated a sample size of the total population of Saudi Arabia (34 000 000) to be 385 participants, using the Raosoft calculator, with a 5% level of significance, 5% margin of error, 95% confidence and expected response distribution of 50%. We used the chi-square (χ^2) statistic and Fisher's exact test where appropriate. Data analysis was conducted using SPSS version 25.

III. RESULTS

Demographics:

The total number of participants who completed the survey was 565. All of the surveys received were completed and were included in the analysis. The demographics of the participants are illustrated in

Table 1. The majority were between 30-50 years of age (64.2%). Females (90.4%) and those with a university degree or higher (93.5%) were also in the majority. Central province participants were higher in number than those from other provinces, at 40.4%.

Out of 565 participants, only 82 reported having a chronic disease. Sixteen had hypertension, while 15 had diabetes mellites. Hypercholesterolaemia was reported in 14 participants, and thyroid dysfunction in seven. Other, less frequent, chronic conditions included sickle cell anaemia, inflammatory bowel disease, cancer, and renal pathologies.

Frequency of ED visits:

The frequency of ED visits within the current year is illustrated in Figure 1. This frequency did not differ with regard to age; χ^2 (9, N=565) = 6.209, p=0.718, gender; χ^2 (3, N=565) = 2.003, p=0.575, or province; χ^2 (12, N=565) = 10.570, p=0.566.

Perception toward ED waiting time:

The waiting time was perceived to be prolonged by 81.1% (n=458) of respondents. This perception of prolonged waiting times did not differ with regard to age χ^2 (3, N=565) = 5.416, p=0.131; gender χ^2 (1, N=565) = 1.389, p= 0.277; or province χ^2 (4, N=565) = 8.628, p=0.071. In quantifying the acceptable ED waiting time, the majority, 88.8% (n=502), reported less than one hour to be an acceptable time.

Family physician's follow-up:

When queried about the availability of a family physician for regular follow-up, only 5.7% (n=32) reported having a family physician with whom to follow up, while the vast majority did not. Moreover, 81.6% (n=461) said they never visited a family physician. On the other hand, 92.6% (n=523) supported the idea of having a specific family physician for regular follow-up. Such support did not differ with regard to the participants' age; Fisher's exact test=1.043, p= 0.808, or province; χ^2 (4, N=565) = 2.249, p=0.690.

Accessibility to PHCCs:

Overcrowding at PHCCs was reported by 69.2% (n=391) of respondents. In addition, 50.3% (n=284) reported visiting a PHCC without an appointment. The perception of overcrowding did not differ in different provinces; χ^2 (4, N=565) = 8.019, p=0.091.

Perception toward the primary healthcare scope of practice:

When asked where influenza symptoms should be treated, 60.9% (n=344) noted that this should be treated in the PHCC, rather than the ED. The percentage increased to 66.4% (n=375) for the treatment of sore throat and sinusitis, in particular. Furthermore, 53.3% (n=301) believed that chronic diseases such as hypertension (HTN) and Diabetes Mellitus (DM) should be treated in the PHCC rather than the ED. Patients from different age groups did not differ in their opinions as to whether influenza symptoms, sore throat, and sinusitis should be treated in a PHCC or ED ($p>0.05$). Moreover, the perception toward the PHCCs' scope of practice (flu treatment, sore throat/sinusitis, and treatment of chronic diseases) did not differ in different provinces; $p>0.05$.

Urgent care clinics:

Most participants had not heard about UCCs; 92.4% (n=522). Only 3.4% (n=18) of those who had heard about them had visited a UCC. Such perception did not differ between provinces χ^2 (4, N=565) =1.801, $p=0.772$. We also noted that 65.1% (n=368) believed that the UCC is for emergency cases; we believe this is a linguistic bias as the name implies an urgent nature.

IV. DISCUSSION

In this study, most participants (81.1%) reported a prolonged waiting time in the ED, while the perceived acceptable waiting time was less than one hour. This indicates a consensus that the ED waiting time is an issue within the community. It is clear that strategies must be developed to address or mitigate the overcrowding in EDs, given its growing significance and potential effects on both patient and employee wellness. The causes of ED overcrowding have been discussed previously, and they include factors related to input, throughput, and output. Only by being aware of the problem and understanding it can we implement the best strategies for dealing with and controlling it. In this regard, a review was undertaken, beginning with a study of the causes and effects and concentrating primarily on the techniques that might be utilised to combat this phenomenon [12]. This cross-sectional study identified the role of PHCCs in reducing ED overcrowding and assessed the general population's awareness of the role of PHCCs and UCCs.

Furthermore, most participants in our study (81.6%) reported that they had never visited a family physician. However, 92.6% supported having a family physician to follow up with. There is a positive correlation between patients' awareness of and use of PHCC services, according to several research articles [13,14]. According to one study that looked at variables influencing the use of PHCCs in Saudi Arabia, the patients' educational level and awareness of the quality of primary healthcare were crucial factors in determining the degree of primary healthcare consumption [15]. However, in our analysis, we noted a knowledge gap with regard to where minor health issues should be treated. This is evident in the perception that influenza/ common colds symptoms should be treated in the ED rather than a PHCC. Hence, increasing awareness of the care provided by PHCCs should be the first step.

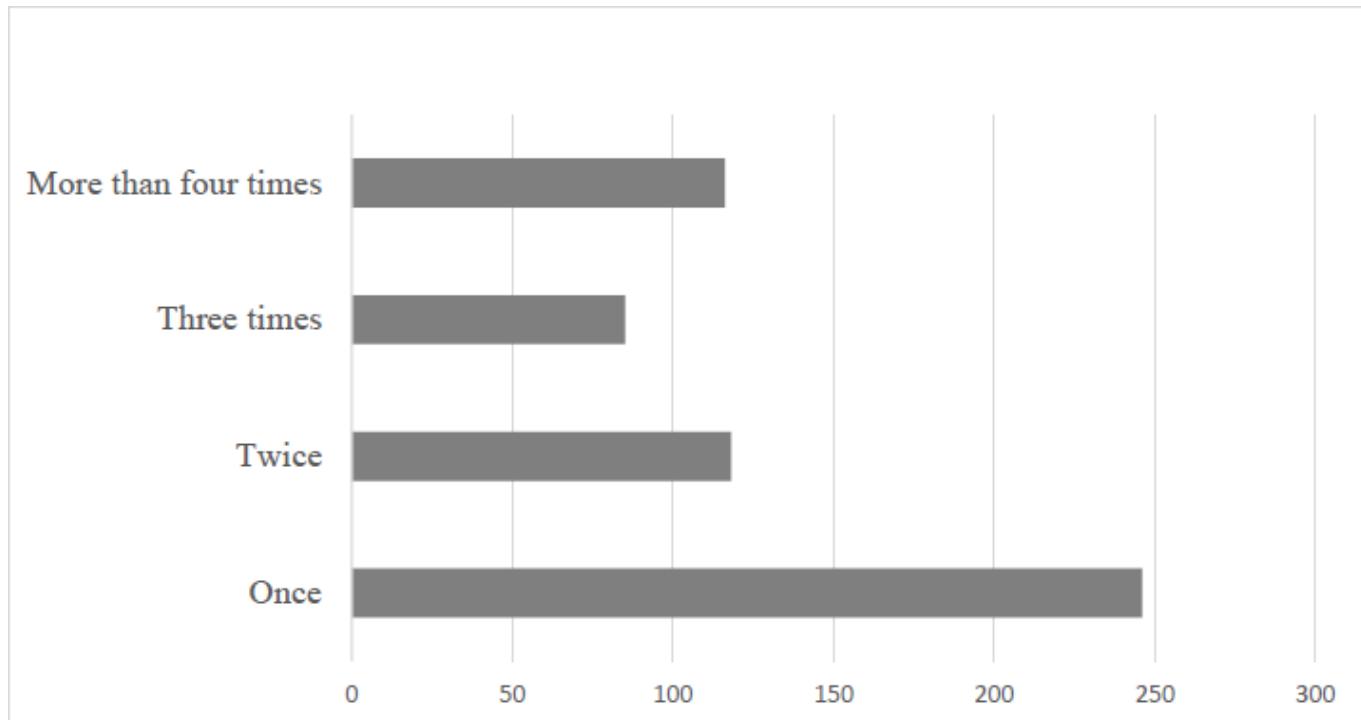
Elagi et al. reported that participants' perceptions of family physicians as crucial elements of the healthcare system were generally positive. However, there may be some communication gaps between doctors and patients, which may be a factor in the dissatisfaction experienced by the majority of the studied group [16].

Most participants in this study (69.2%) reported overcrowding in PHCCs, and nearly half of them (50.3%) reported visiting PHCCs without an appointment. Albalahi et al. reported similar results: about 45% of patients in their survey said they visited the UCC in Riyadh, Saudi Arabia, without making an appointment [5]. Patients were drawn to the scheduling flexibility, indicating that comparable scheduling in traditional primary care systems would also be effective in attracting patients. Previous research has shown that the idea of "open access" appointment scheduling allows patients to receive continuous, normal care while still accommodating their urgent medical requirements [17].

Most of the Saudi population (92.4%) in this study had not heard about UCCs. Although most of the Saudi population (92.4%) in this study had not heard about UCCs, nonetheless, in other countries, the public's increased recognition of UCCs as trustworthy care providers has been speculated to be the cause of the recent acceleration in UCC industry growth [18]. To lessen the burden on emergency rooms and shorten their long waiting times,

TABLE 1. Sociodemographic characteristics of the participants

Parameter	N	(%)
<i>Age</i>		
Younger than 20 years	2	0.4
20-30 years	161	28.5
30-50 years	363	64.2
Older than 50 years	39	6.9
<i>Gender</i>		
Male	54	9.6
Female	511	90.4
<i>Provinces</i>		
Western Province	126	22.3
Northern Province	40	7.1
Eastern Province	39	6.9
Southern Province	132	23.4
Central province	228	40.4
<i>Education</i>		
Primary school	2	0.4
Elementary school	7	1.2
High school	28	5
University degree and higher	528	93.5

**Figure 1.** Frequency of Emergency Department visits within one year

it is advised that any non-life-threatening medical problem requiring immediate attention be taken to a UCC rather than an ED. However, given their longer office hours during the week and on weekends, which the majority of primary care physicians do not offer, it is advised to visit a UCC in addition to primary care services, rather than using a UCC as a substitute for a primary care physician [5].

Our study provides new insight into public awareness of the importance of PHCCs and UCCs. We provide a thorough analysis of how those services are underutilised at the expense of the ED. On the other hand, our analysis is limited in that the majority of the participants were female and that the survey was not validated prior to its distribution.

V. CONCLUSION

ED overcrowding and prolonged waiting times remain a public concern. Meanwhile, PHCCs and UCCs are underutilised; such underutilisation is attributed to the lack of public awareness regarding their scope and available services. Investment in public awareness appears justifiable, whether through the media or by shifting patients from the ED to the UCC. Collaboration with family physicians for their perspective, and another look at the geographical coverage of PHCCs in relation to population density, are both warranted.

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