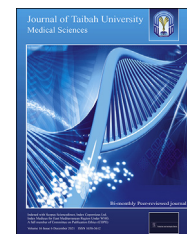




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Original Article

## Factors associated with patients bypassing primary healthcare centres in Qassim Region, KSA



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### المخلص

**أهداف البحث:** تجنب المرضى لمراكز الرعاية الصحية الأولية هو مؤشر إما على مشاكل كبيرة في نظام الرعاية الصحية أو وجود رعاية أفضل بشكل ملحوظ في مصادر الرعاية البديلة. أجريت هذه الدراسة للتحقيق في أسباب تجنب المرضى الذين يعانون من أمراض شائعة لمرافق الرعاية الصحية الأولية المحلية في القصيم، المملكة العربية السعودية.

**طرق البحث:** أجريت دراسة مقطعية مستعرضة على ٢٦٦ مريضاً، حضروا إلى أقسام الطوارئ في المستشفيات العامة بمنطقة القصيم. تم اختيار المرضى بشكل عشوائي وتم تصنيفهم على أنهم مرضى من المستوى الخامس باستخدام نظام فرز حدة المرض الكندي لتوصيف المرضى.

**النتائج:** كان لدى ٨٥.٧٪ من بين ٢٦٦ مريضاً خبرة مراجعة سابقة لمرافق الرعاية الصحية الأولية. غالبية المرضى لم يكونوا راضين عن علاجهم في مراكز الرعاية الصحية الأولية. أفاد حوالي ٥٢.٩٪ من المرضى أن ساعات العمل في مراكز الرعاية الصحية الأولية لم تكن كافية، وأفاد ٣٨.١٪ من المرضى بعدم وجود كادر طبي ذي خبرة، واعتقد ٣١.٧٪ من المرضى أن الأجهزة التشخيصية كانت غير كافية في مراكز الرعاية الصحية الأولية، بينما أبلغ ١٣.٨٪ من المرضى عن عدم توفر الأدوية الموصوفة. والأهم من ذلك، أفاد ١٧.٧٪ من المرضى أنهم لم يتجنبوا مراكز الرعاية الصحية الأولية مطلقاً وقد استفادوا من مرافقها. ومن المثير للاهتمام، أن البيانات أظهرت أيضاً أن جنس

المريض وعمله وحالته الاجتماعية ليس لها دور مهم في تجنب مراكز الرعاية الصحية الأولية والذهاب إلى أقسام الطوارئ.

**الاستنتاجات:** إن تجنب المرضى لمراكز الرعاية الصحية الأولية دون استمارة إحالة هو مصدر قلق خطير سيؤثر على أنظمة الرعاية الصحية وخاصة أقسام الطوارئ. إذا استمر التجنب، فإنه سيزيد بالتأكيد العبء على أقسام الطوارئ، مما يؤثر سلباً على خدمات الرعاية الصحية لعامة السكان.

**الكلمات المفتاحية:** أنظمة الرعاية الصحية؛ تجنب مراكز الرعاية الصحية الأولية؛ أقسام الطوارئ؛ القصيم؛ السعودية

### Abstract

**Objective:** This study investigates the reasons for bypassing local primary healthcare centres (PHCs) by patients with minor illnesses in Qassim Region, KSA.

**Methods:** A cross-sectional study was performed on 266 patients that visited emergency departments in public hospitals in Qassim Region. The patients were randomly selected and categorised as level five patients (LFPs) using the Canadian Triage and Acuity Scale (CTAS) for patient characterisation.

**Results:** Of the 266 patients, 85.7% had previous experience of visiting PHC facilities. The majority of these patients were not satisfied with their treatment in PHCs. Approximately 52.9% of the patients reported that the working hours at PHCs were not sufficient, 38.1% mentioned a lack of experienced staff, and 31.7% believed that PHCs were insufficient for diagnostic tests. Another 13.8% of the patients reported the unavailability

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of prescribed medicines. Interestingly, 17.7% of the patients reported that they never bypassed PHCs. In general, the data demonstrate that patients' gender, employment, and marital status have no significant role in their decision to skip PHCs in favor of emergency departments of public hospitals ( $p > 0.05$ ).

**Conclusions:** Patients bypassing PHCs without a referral form is a serious concern that have a deleterious effect on the healthcare system, particularly emergency departments. If bypassing continues, it will increase the burden on emergency departments, particularly on healthcare services for the general population.

**Keywords:** Bypassing; Emergency departments; Healthcare systems; Patient experience; Qassim

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## Introduction

Human health is a primary goal of the World Health Organization, one that cannot be achieved without the involvement of primary healthcare centres (PHCs) worldwide.<sup>1,2</sup> PHCs basically provide ongoing care for patients with non-severe disorders, particularly in societies with a growing elderly and young population, and put greater emphasis on patients' independence.<sup>2,3</sup> Moreover, PHCs play an important role for paediatric patients and in vaccination programs for healthy children.<sup>4</sup> In the last two or three decades, healthcare services in KSA have greatly improved, particularly in terms of their quality and accessibility in both government and private hospitals.<sup>5,6</sup> The Ministry of Health of KSA has advanced several schemes that enhance facilities for better treatment of patients. Therefore, a large number of PHCs and hospitals have been developed across the country,<sup>7</sup> and facilities at PHCs have now been targeted by ministry officials to meet patients' requirements more completely.<sup>8,9</sup> It is important to point out that healthcare services in KSA are offered for free to its citizens in thousands of PHCs and hospitals<sup>6</sup>; however, positive health outcomes and high quality of care to ensure patient satisfaction remain the primary goal.<sup>6,10</sup> Healthcare outcomes are affected by several factors, including satisfaction, emphasising the need to provide a better standard of services; the potential factor of dissatisfaction must be addressed and removed.<sup>10,11</sup> The first point of contact between the patient and healthcare system is the PHC, the important healthcare services that fit the needs of the local community.<sup>10,12</sup> To achieve an acceptable level of health for the community, PHCs are a fundamental component of the healthcare system, not only in KSA but also globally.<sup>1,10</sup> Therefore, the entire population, regardless of their economic or social levels and geographical location, should have access to PHC services and have an optimum level of satisfaction.<sup>1,12</sup> For

this reason, patients bypassing PHC facilities are symptomatic either of a notable problem in the quality of care or of a significantly preferable experience at the other source of care chosen.<sup>13</sup> It is necessary to address these factors that influence patient satisfaction to ensure that PHCs are widely available, functional in practice, and utilised optimally and to understand the community's perception of the quality of care to increase utilisation of PHC facilities.<sup>14</sup> Several studies in KSA demonstrated patients' satisfaction with high quality of healthcare and services provided in the PHCs.<sup>6,9,15</sup> However, studies have also shown that the ratio of patients with mild ailments at PHCs has continuously declined, whereas the burden of non-urgent patients in emergency departments of public hospitals has increased.<sup>16,17</sup> Dawoud et al. indicated that emergency departments in KSA are overcrowded with non-urgent patients, despite the availability of PHCs to deal with such cases.<sup>18</sup> To analyse this important issue, we conceived a hypothesis to determine the factors involved in patients' decisions to bypass PHCs. To test this hypothesis, the patients' perceptions on bypassing PHC services, such as the behaviour of healthcare workers, working hours at the clinics, availability of equipment and medications, and quality of the infrastructure, have been investigated in Qassim, a central region of KSA.

## Materials and Methods

A cross-sectional survey was conducted on patients attending emergency departments of three major hospitals in Qassim Province: the King Fahd Specialty Hospital (KFSH), the Buraidah Central Hospital, and King Saud Hospital. Two of these three major government hospitals are in Buraidah, and one is in Unaizah. The patients who were selected were categorised as level five patients (LFPs) (chronic central mild pain, <4; acute peripheral mild pain, <4; and chronic peripheral pain) on the basis of the Canadian Triage and Acuity Scale (CTAS) for patient characterisation, as described previously. This system was created to support triage nurses in classifying emergency patients based on the level of acuity or high-risk presentation to assign them to the most appropriately resourced and accessible treatment areas.<sup>19</sup> The patients attending emergency departments in the three hospitals represent the majority of emergency department visits in Qassim Region, making them a good representation of the general population. Patients who arrived on Fridays and Saturdays, children under 16 years old, and patients with disabilities were excluded.

Using the formula  $n = Z^2pq/e^2$ , the sample size was determined to be 310 participants, assuming that 72% of the visits to emergency departments are non-urgent cases, based on a previous study in KSA.<sup>18</sup> Because of weather circumstances that have occurred during the data collection, a total of 266 patients enrolled for the study over a one-month period on randomly selected days, using a simple random sampling technique as described previously.<sup>20</sup> Briefly, nine days of a particular month have been selected randomly to avoid bias in data collection. The weekends, Fridays and Saturdays, were excluded. To

ensure a good representative sample of patients, data were collected in three periods: three days from 8:00 a.m. to 1:59 p.m., three days from 2:00 p.m. to 5:59 p.m., and three days from 6:00 p.m. to 10:00 p.m.

The data were collected using a structured, self-administered questionnaire. As there are no validated questionnaires available for such a topic, the study team determined the variables based on several previous studies.<sup>14,18,21,22</sup> The questionnaire included sociodemographic data (age, gender, marital status, educational level, and occupation), level of satisfaction with the services provided, reasons for satisfaction/dissatisfaction, questions for measuring the participants' knowledge of PHC services, and questions to determine the cause of bypassing PHCs.

Data collectors were responsible for the distribution and collection of the questionnaire and informed consent form to the research participants. In the case of non-reading patients or patients who are unable to respond to the questionnaire independently, the investigator interviewed the patient using the questionnaire. Investigators were trained to use a standardised asking technique to minimise any bias in data collection. The data obtained from the completed questionnaires were coded and entered on the computer for analysis using the Statistical Package for Social Sciences (SPSS) version 21. Suitable descriptive methods were used to display and summarise the data. Appropriate statistical tests were applied, and a *p*-value of less than 0.05 was considered statistically significant.

## Results

A total of 266 patients with minor illnesses agreed to participate in the study; 22 patients refused to participate and were therefore excluded. Table 1 summarises all demographic details of the participants.

Of the 266 respondents, 50.4% were not satisfied with their treatment at PHCs. Approximately half of the patients

**Table 1: Demographic characteristics of subjects.**

Studied subjects	<i>n.</i> (%)
<b>Age Mean (<math>\pm</math>SD)</b>	30 (12)
<b>Gender</b>	
Female	157 (59)
Male	109 (41)
<b>Marital status</b>	
Single	139 (52.3)
Married	121 (45.5)
Divorced	6 (2.3)
<b>Nationality</b>	
Saudi	231 (86.8)
Non-Saudi	35 (13.2)
<b>Education level</b>	
Below secondary	39 (14.7)
Secondary or above	227 (85.3)
<b>Employment</b>	
Employed	93 (35)
Unemployed	173 (65)

Abbreviations: *n*, number of studied subjects; SD, standard deviation; %, percentage.

**Table 2: Participants' experiences of PHCs.**

Participants' experience	<i>n.</i> (%)
<b>1- Have you ever visited a PHC?</b>	
Yes	228 (85.7)
No	38 (14.3)
<b>If yes, have you ever received treatment from a PHC and it failed?</b>	
Yes	113 (49.6)
No	115 (50.4)
<b>If yes, have you experienced unavailability of prescribed medications at your last PHC visit?</b>	
Yes	127 (55.9)
No	94 (44.1)
<b>2- Time of visit at ED:</b>	
8:00 a.m. to 1:59 p.m.	40 (16.5)
2:00 a.m. to 5:59 p.m.	74 (30.6)
6:00 p.m. to 10:00 p.m.	128 (52.9)
<b>3- Are the working hours at PHCs suitable?</b>	
Yes	157 (59)
No	109 (41)
<b>4- Number of times patients with minor illnesses bypassed PHCs during the last 12 months:</b>	
Never	47 (17.7)
1–2 time/s	104 (39.1)
Three or more	115 (43.2)
<b>5- First choice for seeking medical help in case of minor illness:</b>	
Nearest PHC	98 (36.8)
ED of public hospitals	100 (37.6)
Private clinic	33 (12.4)
Advice from relatives or neighbours	35 (13.2)
<b>6- How much time does it take to reach the PHC?</b>	
10 min or less	200 (75.2)
11–20 min	45 (16.9)
20 min or more	21 (7.9)
<b>7- How much time does it take to reach the hospital?</b>	
10 min or less	94 (35.3)
11–20 min	109 (41)
20 min or more	63 (23.7)
<b>8- Reasons for bypassing PHCs:</b>	
Unavailability of drugs	26 (13.8)
Unavailability of diagnostic measures	60 (31.7)
Need for more experienced staff	72 (38.1)
Failure of the previous experience at PHC	17 (9)
Other reasons	14 (7.4)

Abbreviations: PHCs, primary healthcare centres; ED, emergency department.

(52.9%) with minor illnesses visited emergency departments after 6:00 p.m., and more than half of the patients (59%) indicated that the working hours at the PHCs were not convenient for them. Most importantly, the majority of patients (82.3%) with minor illnesses bypassed PHCs, of which 43.2% bypassed them more than three times. Interestingly, approximately 17.7% of the patients had never bypassed PHCs before and used their facilities (Table 2). The data also showed that emergency departments of public hospitals were their primary choice (37.7%) for seeking medical help even for minor illnesses, followed by the nearest PHC (36.8%), advice from relatives or neighbours (13.2%), and a private clinic (12.4%). The need for more experienced staff was reported by 38.1% of the respondents, followed by the unavailability of diagnostic measures, as reported by 31.7% of the patients.

**Table 3: Comparison of patients' opinion scores on PHCs.**

	mean score (SD)*	P-value**
<b>Gender</b>		0.109
Male	5.77 (2.11)	
Female	5.34 (2.11)	
<b>Marital status</b>		0.611
Not married	5.58 (2.01)	
Married	5.44 (2.23)	
<b>Employment</b>		0.494
Employed	5.64 (2.3)	
Unemployed	5.45 (2.01)	
<b>Bypassing times</b>		0.112
Two times and fewer	5.70 (2.05)	
Three times and more	5.28 (2.18)	
<b>Educational level</b>		0.624
Secondary and below	5.40 (2.04)	
High school and above	5.55 (2.13)	
<b>Time of visit: Day or night</b>		0.214
Day shift: 8:00 a.m. to 5:59 p.m.	5.59 (2.14)	
Night shift: 6:00 to 10:00 p.m.	5.24 (2.09)	

Abbreviations: PHCs, primary healthcare centres.

\*Score based on eight questions; the higher the score, the better the opinion.

\*\*Independent samples t-test.

All related experiences of the participants regarding PHCs are summarised in Table 2. In addition, eight questions were related to patients' opinions on PHC staff and services, and four were related to physicians' experience and their ability to assess fundamental health problems in addition to explaining diagnostic tests and giving health advices. Two questions were asked whether the nurses were well-trained and how the PHC staff treated the attendees, with a score of 1 for yes and 2 for no. The maximum possible score was 8 points. Table 3 compares the mean opinion score in relation to factors associated with patients' gender, marital status, employment, bypassing time taken, educational level, and visiting time. Furthermore, our results identify the role of gender, employment, marital status, and educational level in deciding to bypass PHCs (Table 4). The unavailability of medicines was a factor for the eldest of the participants, with a mean ( $\pm$ SD) age of  $32.08 \pm 13.4$  years. Approximately 42.2% of the unmarried participants suggested that more experienced staff at PHCs were urgently needed, while 41.3% of the married patients believed that diagnostic measures were insufficient. In addition, the data demonstrated the role of gender, employment, marital status, and educational level on bypassing PHCs; the findings suggest that patients' gender, employment, and marital status have no

**Table 4: Role of gender, employment, marital status, and educational level on bypassing PHCs.**

	Reasons for bypassing PHCs				P-value*
	Unavailability of medicines	Unavailability of diagnostic measures	Need for more experienced staff	Other reasons	
	mean (SD)	mean (SD)	mean (SD)	mean (SD)	
<b>Age</b>	32.08 (13.4)	31.4 (12.538)	27.15 (11.915)	26.29 (8.279)	0.058
	n (%)	n (%)	n (%)	n (%)	P-value**
<b>Gender</b>					$p = 0.969$
Male	10 (14.1)	21 (29.6)	28 (39.4)	12 (16.9)	
Female	16 (13.6)	39 (33.1)	44 (37.3)	19 (16.1)	
<b>Employment</b>					$p = 0.558$
Employed	9 (16.1)	18 (32.1)	23 (41.1)	6 (10.7)	
Unemployed	17 (12.8)	42 (31.6)	49 (36.8)	25 (18.8)	
<b>Marital status</b>					$p = 0.120$
Not married	16 (14.7)	27 (24.8)	46 (42.2)	20 (18.3)	
Married	10 (12.5)	33 (41.3)	26 (32.5)	11 (13.8)	
<b>Educational level</b>					$p = 0.299$
Secondary and below	11 (21.6)	14 (27.5)	18 (35.3)	8 (15.7)	
High School and above	15 (10.9)	46 (33.3)	54 (39.1)	23 (16.7)	
<b>ER visit time</b>					$p = 0.500$
Day shifts (8:00 a.m. to 5:59 p.m.)	14 (17.3)	27 (33.3)	26 (32.1)	14 (17.7)	
Night shift (6:00 p.m. to 10:00 p.m.)	10 (11.2)	26 (29.2)	37 (41.6)	16 (18)	
<b>Bypassing times</b>					$p = 0.183$
Two times and fewer	15 (13.5)	42 (37.8)	38 (34.2)	16 (14.4)	
Three times and more	11 (14.1)	18 (23.1)	34 (43.6)	15 (19.2)	

Abbreviations: PHCs, primary healthcare centres; ED, emergency department.

\*One-way ANOVA, \*\*Using Pearson's chi-square test.



significant influence on patients' choice of bypassing PHCs for emergency departments of public hospitals ( $p > 0.05$ ).

## Discussion

This is the first comprehensive cross-sectional study in Qassim Region, KSA, that showed a large percentage of patients with mild disorders bypassing PHCs for emergency departments of public hospitals. A number of published studies in KSA showed that patients were satisfied with the quality of healthcare and services provided at PHCs.<sup>2,23</sup> However, other studies have shown that the ratio of patients with mild illnesses at PHCs has continuously decreased, while the number of such patients in emergency departments of both public and private hospitals has increased.<sup>24</sup> We designed this study to determine the factors involved in patients bypassing PHCs.

In the present study, 266 patients with common illnesses were approached at emergency departments of three major government hospitals in Qassim. The patients were randomly selected over a one-month period. Of the patients, the majority of them were Saudi nationals, had previously visited PHCs, had experienced their facilities, and were not satisfied with the services provided. The patients gave different reasons for bypassing PHCs; almost half of the patients considered that the treatment at PHCs was not good, whereas another group of patients reported a lack of prescribed medications. Furthermore, more than half of the selected patients indicated that the opening times of the PHCs were inconvenient, as they used to visit emergency departments at public hospitals in the evening or during the night. Furthermore, a good percentage of patients considered that the staff at PHCs were incompetent. These findings have been well supported by other studies.<sup>25</sup> For example, a study conducted in South Africa found that self-referred non-urgent cases represented 88% of the patients, of which 30% had no acute complaint. The main factors against visiting hospital PHCs were a lack of help (27.5%), belief in better treatment (23.7%), and limited working hours at PHCs (22%).<sup>21</sup> Despite these problems associated with PHCs, approximately 18% of the patients were still satisfied with the facilities provided and visited PHCs on a regular basis. These findings were consistent with other published studies that showed patient satisfaction with PHCs.<sup>2,3</sup> On being asked for their preferred choice among all medical services, the patients showed that emergency departments at public hospitals were their first choice even for minor illnesses, followed by the nearest PHC, and advice from relatives and/or neighbours. Interestingly, the patients disliked going to private clinics. These results have also been supported by previous studies that showed the choices that patients make when selecting healthcare centres.<sup>22,26</sup> Furthermore, our findings show that gender, employment, and marital status have no significant impact on patients bypassing PHCs for emergency departments of public hospitals. These are novel findings that have not been fully investigated before. In spite of these important findings for the improvement of healthcare services at PHCs, this study has some limitations; the most obvious of which is the location. This study was limited to the Qassim

Region; therefore, it is not a representative of the entire population of KSA. The second most obvious limitation is the sample size; it would have been better to survey 500–1,000 patients.

## Conclusion

This study investigates the factors that influence patients to bypass PHCs. Bypassing of PHCs by patients with minor ailments, without a referral form completed by a specified doctor and/or general physician, is a serious concern that affects both emergency departments of public hospitals and PHCs. If bypassing continues, it will increase the load on emergency departments of public hospitals and adversely affect healthcare services for the general population, particularly for patients with critical conditions.

## Recommendations

This study strongly recommends that facilities at PHCs should be improved by considering the factors identified by patients, including the hiring of experienced medical staff and improving diagnostic measurements.

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This study did not receive any specific grant from funding agencies in the public, commercial, or non-profit sectors.

## Conflict of interest

The authors have no conflict of interest to declare.

## Ethical approval

This study was approved by the Regional Bioethical Committee at the Ministry of Health, Qassim, KSA on Nov. 1, 2018 (Approval no. 20181101) and was performed in accordance with the principles outlined in the Declaration of Helsinki.

## Consent

Informed written consent was obtained from all participants.

## Authors' contributions

AA, AA, YA, and FA initiated the project and performed data collection. FA performed data analysis. MA, ZR, and FA worked on data interpretation and manuscript drafting. All authors have critically reviewed and approved the final draft and are responsible for the content and similarity index of the manuscript.

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