

Original Research Article

Exploring patients satisfaction after the implementation of an electronic medical record system at Al-Wakrah primary health center, Qatar, 2016

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Received: 18 August 2017

Revised: 11 September 2017

Accepted: 12 September 2017

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ABSTRACT

Background: The healthcare industry has focused much attention on patient satisfaction with the quality of healthcare services. However, there remains a lack of research on patient satisfaction towards the implementation of an electronic medical record system at a primary healthcare setting. This study aimed at assessing the level of patient satisfaction regarding primary health care services after the implementation of an electronic medical record (EMR) system.

Methods: A descriptive cross-sectional study was conducted at the Al-Wakrah health care center, with a random/convenient sample of 52 patients attending the center. Furthermore, the investigators interviewed the participants, in the waiting area, regarding their satisfaction with the primary health care services provided following the EMR system implementation. A structured interview-based questionnaire for measuring patient satisfaction was employed.

Results: The vast majority of participants indicated that the overall service at the health center greatly improved after EMR implementation. Furthermore, most interviewees were totally satisfied with the overall workflow at the health care center such as the time spent at the registration desk (76.9%), before seeing a physician (65.4%), while the physician used the computer (76.9%), physical examination (69.3%), laboratory testing (73.1%), and collecting the medication (65.4%). Regarding health education and informativeness, the participants found that labeling medication bottles was quite informative. However, less than two-thirds (61.5%) of the patients were satisfied with the health education delivered by physicians.

Conclusions: The results revealed that although overall patient satisfaction was relatively high, certain aspects of the health care service remained to be a source of dissatisfaction. Thus, this study demonstrated patient acceptance and support for the electronic medical record system at the primary health care setting.

Keywords: Patient satisfaction, Primary health care, Electronic health records, Qatar

INTRODUCTION

Health information technology has become an issue of public health importance as it demands substantial investment by nations and involves the confidential health records of millions of human beings. In addition to

that, this technology has the potential to achieve universal health care, bridge inequities, and facilitate access to care whether financial, geographical, or social.

In the realm of the healthcare system, electronic medical records (EMR) have the capability to improve the quality

of health services and reduce the cost of care; which are issues of high priority for individuals and nations alike. Such systems can help reduce administrative burdens, file, retrieve and sort medical records, gather and analyze data. Additionally, an electronic system would further improve patient safety, interpersonal communication, as well as enhance workflow management, research, and clinical decision-making.¹

A well-planned and carefully executed strategy for electronic medical records can make healthcare delivery more satisfying, efficient, and improve physician-physician and physician-patient relationships. Moreover, empirical studies of electronic medical records (EMR) have recently increased; but both patient satisfaction and physician-patient relationship have not been fully evaluated after the implementation of such systems.²

In Qatar, there is an ongoing nationwide implementation of a clinical information system (CIS) at the governmental primary, secondary, and tertiary levels of care. The primary health care corporation (PHCC) represents the main provider of primary healthcare in the state of Qatar, where during the year of 2015, it served 4.6 million visitors across its health care centers. Its strategies include expanding PHCC facilities and implementing an EMRS at all facilities, which include 23 healthcare centers dispersed across the nation. As of the end of 2016, the EMRS has been rolled out across the different facilities, where patients' healthcare information has been transferred from paper format to the newly implemented electronic medical record system.³

Despite the vast potential of such an electronic system to increase efficiency of care and mitigate medical errors⁴ as well as promote evidence-based research and quality improvement, the quality of service provided remains to be the major concern.⁵ Subsequently, a vital aspect of quality of care is patient satisfaction, as it represents both an indicator and a stimulus for quality improvement. Much attention within the healthcare industry has focused on patient satisfaction with the quality of healthcare services. Also, satisfaction is generally defined as the level at which patients feel that their needs and expectations are being met by the services provided; thus, it is associated with continuity of care and the physician's communication skills.^{6,7} Overall, satisfaction depends on the patient's judgment towards the care provided, where the attending physician constitutes a key element in the equation.^{8,9} Therefore, measuring satisfaction is an important tool for research, administration, and planning when it comes to healthcare quality.¹⁰ No previous research has targeted this critical aspect in Qatar because the implementation of the CIS is a novel matter with all its benefits and pitfalls.

Objectives

The aim of this study is to assess the patients' level of satisfaction with primary health care services provided

after the implementation of an electronic medical record system.

METHODS

Study design and setting

A cross sectional study was conducted at the Al-Wakrah Health Center, Al- Wakrah municipality, south of Qatar between September 2015 and January 2016.

Population and sampling

According to the population census conducted by the Ministry of Development Planning and Statistics in 2015, Al- Wakrah municipality was home to approximately 300,000 individuals (299,037); more than a double increase from the earlier census in 2010 that yielded an estimate of 141,222. Currently, the Primary Health Care Corporation has established one health care center in Al-Wakrah, with another two centers under planning according to the former's 2015-2016 annual report. Thus, the target population of this study was the patients attending the two-shift periods at Al-Wakrah health center regardless of age and gender. Consequently, we interviewed a random/convenient sample of 52 patients attending the health center.

Data collection

An interview-based structured Arabic questionnaire was used to collect data from the participants; where a verbal consent was obtained from each respondent after assuring the confidentiality of the responses. The questionnaire development process depended mainly on a stringent literature review and final consulting of national experts in the field. Afterwards, the questionnaire was piloted on 10 patients attending the healthcare center and the results were only used for further adaptation of the survey regarding simplicity and clarity. Thus, the questionnaire was composed of two main sections about demographics (7 questions) and patient satisfaction (30 questions). Also, the latter section was further divided into three main subsections, which are accessibility, continuity of care and humanness, and health education/informativeness; where the responses depended on a Likert scale ranging from very satisfied, satisfied, neutral, dissatisfied, and very dissatisfied.

Data analysis

After collecting the data, statistical analysis was conducted through the use of Microsoft Excel 2007. The level of satisfaction was assessed by using the Likert scale and percentages of responses were calculated. Only completed responses for all required questions were utilized for the statistical analysis.

RESULTS

Characteristics of respondents

The response rate was 100%. Regarding the socio-demographic characteristics of the participants, the majority (84.5%) of the participants were 20-49 years of age; where the most frequent age group (53.8%) was 30-39 years. Moreover, the male: female ratio of the study sample was almost 1:1, where just over half (53.8%) of the participants were males while the rest (46.2%) were females. Most participants (92.3%) were married and a sizable portion of the study population (73.1%) possessed a university level education or higher. In addition, about a fifth (19.2%) of the interviewees attained secondary level education and a small group (7.7%) only finished primary school.

Table 1: Demographic characteristics of the respondents.

	Number	Percentage (%)
Age group (years)		
<20	4	7.7
20-29	6	11.5
30-39	28	53.8
40-49	10	19.2
50 and over	4	7.7
Gender		
Male	28	53.8
Female	24	46.2
Marital status		
Single	4	7.7
Married	48	92.3
Occupation		
Worker	38	73.1
Retired	2	3.8
House wife	12	23.1
Educational level		
Illiterate	0	0.0
Read and write	0	0.0
Primary/ preparatory	4	7.7
Secondary	10	19.2
University and above	38	73.1

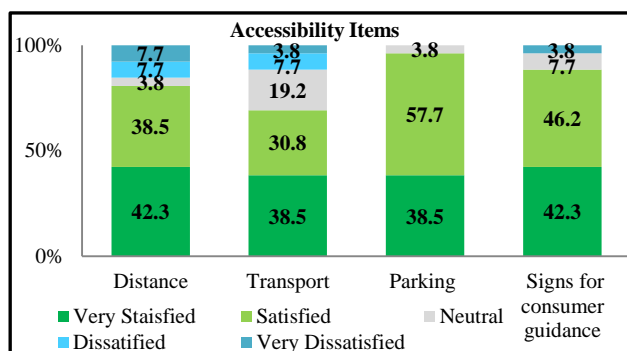


Figure 1: Satisfaction towards the accessibility items.

Level of satisfaction among respondents

Figure 1 shows the level of satisfaction among four different accessibility components. The majority of respondents were satisfied with the health center's accessibility such as the distance to the health center (80.8%), transportation availability (69.3%), the parking spaces (96.2%), and guiding signs for those attending the health center (88.5%).

PHCC's primary health care centers typically operate over two shifts, a morning shift between 7:00 am and 2:00 pm and an evening shift between 4:00 pm and 11:00 pm. When assessing patients' satisfaction towards the aforementioned working hours, about two-thirds (65%) of the participants reported being satisfied/very satisfied with the current working hours of the center and almost one-fourth of the respondents (23%) remained neutral on the subject. On the other hand, a minority (12%) were overall dissatisfied with the hours of work.

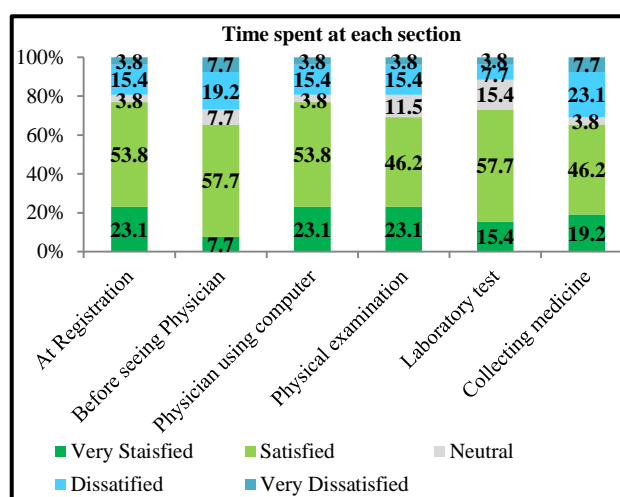


Figure 2: Satisfaction towards the time spent at different settings.

Figure 2 reveals the respondents' answers regarding the waiting time spent at different settings after the implementation of an electronic medical record system (EMRS). Furthermore, the vast majority of interviewees expressed satisfaction with the overall workflow at the health center. For example, the center attendants were satisfied/very satisfied with the time spent at the registration desk (76.9%), before seeing a physician (65.4%), while the physician used the computer (76.9%), physical examination (69.3%), laboratory investigation (73.1%), and collecting medication at the pharmacy (65.4%).

When interviewing the health center attendants about their satisfaction towards the humaneness of the center's staff, most were satisfied with the way of dealing. Moreover, the patients were particularly satisfied with the way they were treated by nurses (100%), pharmacists (96.2%), laboratory personnel (92.3%), and

administrative staff (88.5%). However, physicians achieved the least satisfaction level (73.1%) on humaneness according to the patients; where almost a fifth (19.2%) of the latter reported dissatisfaction.

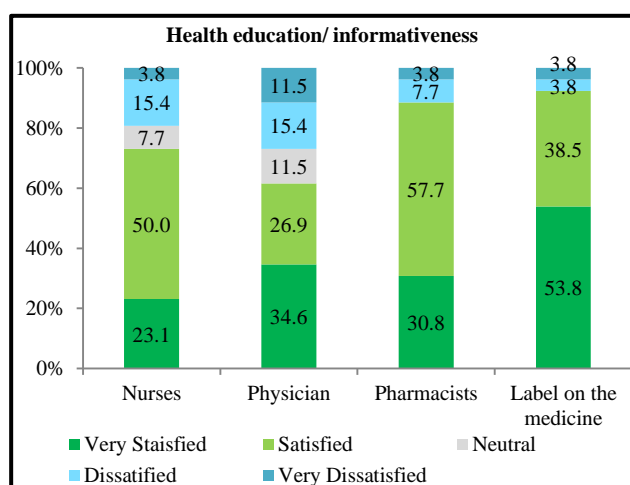


Figure 3: Satisfaction towards the informativeness of the center's staff.

Figure 3 portrays the respondents' satisfaction regarding health education provided at the health care center from different sources; thus reflecting overall informativeness. In general, the participants found that labels on medicinal bottles were quite informative (92.3%). However, less than two thirds of the participants (61.5%) were satisfied with the health education delivered by physicians. This is in contrast to the patients' satisfaction regarding the informativeness of nurses (73.1%) and pharmacists (88.5%).

Regarding patient satisfaction towards educational posters presented at the health center, the vast majority (92%) of participants were satisfied/very satisfied with these posters. On the other hand, a mere 4% were neutral and another 4% reported dissatisfaction on the matter.

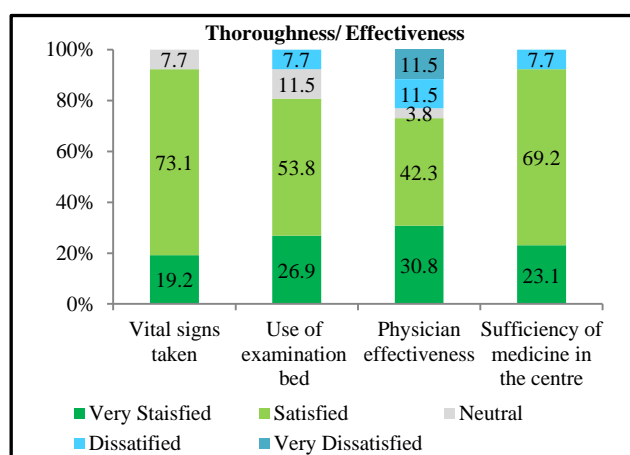


Figure 4: Satisfaction towards effectiveness at the health center.

After the implementation of the electronic medical record system, many participants indicated they were quite satisfied with the effectiveness of health services provided, as taking the vital signs (92.3%), use of examination bed (80.7%), and sufficiency of medications at the pharmacy (92.3%). However, physician effectiveness (73.1%) received the least level of satisfaction (Figure 4).

Finally, the satisfaction towards the continuity of health care provided was assessed based on three variables which are the referral system, follow up by the same physician, and utilizing the health center for any medical issue. The respondents' satisfaction ranged between half (50%), less than two-thirds (65.4%), and more than two-thirds (69.3%) for the aforementioned categories in respective order. Therefore, the participants were mostly dissatisfied with the referral system (38.5%) and lack of follow-up with the same physician (31.4%).

DISCUSSION

The majority of Qatar's population considers PHCC centers as the first line of access to healthcare services. This study aimed to investigate patients' satisfaction towards the quality of services provided at PHCC's Al-Wakrah health center after the implementation of an EHR system.

There was general satisfaction with the services provided at the health center after implementing the electronic system. Similarly, a study by Al-Azmi et al in Kuwait assessed the level of patients' satisfaction with primary health care services following the implementation of an EMRS. According to the study participants, the service greatly improved after rolling out of the system as a result of better access to medications from the pharmacy, medication labeling, physician performance, and arrangement of patient flow. However, one of the main reasons of dissatisfaction revealed was similar to that of our study, which is the inability of patients to book an appointment with the same physician at every visit.¹⁰ The aforementioned phenomenon reflects the fact that patients want to be better acquainted with their doctors before entrusting them with their lives. Thus, this trust entails certain prerequisites as the ability of a patient to choose his/her doctor and the need to establish rapport with that doctor through a long duration of contact.¹¹ However, this might be tiresome with an electronically generated appointment system of a corporate entity where thousands of healthcare providers are employed. Similarly, healthcare providers seem to agree with patients that an electronic medical record system enables better health care. This was the outcome of a paper by Terry et al, which surveyed primary care physicians on their experience with the EMRS and found that one of the motivators for ongoing use of the system by physicians was the belief that patient care became more efficient.¹²

Another finding in the current study was the satisfaction of patients with the humaneness of the health center staff. Rose et al studied the impact of the electronic health record system on diabetic patients' communication experience with their physicians and nurses. One of the primary concerns raised by patients through the focus group sessions was communication issues; given that communication is vital for establishing optimal care and patient satisfaction.¹³

Additionally, data analysis related to the continuity of care revealed that the overall satisfaction was relatively high. Nevertheless, the two leading causes of dissatisfaction expressed by the majority of participants were the referral system and the lack of follow up by the same physician. The former observation maybe explained by the fact that Hamad Medical Corporation, Qatar's governmental provider of secondary and tertiary healthcare, accounts for 90% of the services provided in the country.¹⁴ Thus, the referral process from primary care to the secondary care level is time-consuming because the healthcare system is overwhelmed.

Another outcome was that physicians scored the least regarding satisfaction on effectiveness (73.1%), humaneness (73.1%), and delivery of health education (61.5%) as rated by the interviewees. This correlates well with the results of a research by Al-Doghaither et al, which assessed patient satisfaction regarding primary health care services; where among five staff categories, physician services ranked last on the mean satisfaction score.¹⁵ Another study by Galhotra et al regarding patient satisfaction towards services at a rural health center in India revealed that just more than half (58.5%) of the interviewees were satisfied with the physician's relationship with the patients.¹⁶ On the other hand, a study by Denomme et al explored the experiences of primary health care providers regarding electronic medical records 2 years after adoption and found that interprofessional communication improved due to the use of messaging software available in the electronic system. However, the aforementioned research highlighted the importance of team effort in the initial adoption process of a new record system as well as in moving forward to the advanced phase.¹⁷

Strengths/limitations

This study represents a novel approach in the primary healthcare setting of Qatar due to the recent rolling out of the electronic medical record systems in the country. The results showed that although the overall satisfaction was relatively high, certain aspects of the service showed some degree of dissatisfaction. Furthermore, this study revealed that patients attending the primary care setting fully support an electronic medical record system that will facilitate their initial encounter with the health care sector. In addition, these findings should prompt healthcare providers to further adopt and support the use of such record system.

The results obtained in this study cannot be generalized because the sampling technique was non-probable. Also, due to shortage of time and resources, a limited number of participants were enrolled which limits the power of the study. Thus, larger studies are recommended in the near future to further investigate the impact of EHR systems on patient satisfaction. In addition, further research must be conducted after years have passed since the EHR implementation to investigate the cost-benefit factors of this technology.

CONCLUSION

In conclusion, greater effort should be made into researching patient attitudes towards the use of technology in health care. The twenty-first century is witnessing an increasingly prominent role for computers in the delivery of health care, yet recent data detailing their consequence on the patient care and physician-patient relationship are inadequate.

ACKNOWLEDGEMENTS

Our sincere thanks go to the whole clinical information system team, who provided a great opportunity to join their diploma program. In addition to the Health intelligence and Information Section (HIS) team at the Supreme Council of Health who helped me in analyzing the data; without their support it would not have been possible to conduct this research.

Funding: No funding sources

Conflict of interest: None declared

Ethical approval: The study was approved by the Institutional Ethics Committee

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Cite this article as: Al-Dahshan AF, Al-Kubaisi N, Chehab MAH, Al-Hanafi N. Exploring patients satisfaction after the implementation of an electronic medical record system at Al-Wakrah primary health center, Qatar, 2016. *Int J Community Med Public Health* 2017;4:3511-6.