Application of the Kano model to determine quality attributes of patient's care at the primary healthcare centers of the Ministry of Health in Saudi Arabia, 2019

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Abstract:
BACKGROUND: Patient satisfaction is the ultimate goal in any healthcare system. Together with other traditional quality indicators, patient satisfaction must be addressed to improve the quality of health care. The strategic objectives of the Ministry of Health (MOH) formulated by the Saudi National Transformation Program are to improve the quality of healthcare services, expand privatization of governmental services, and create an attractive environment for both local and international investors. The objective of this study was to apply Kano model to determine quality attributes of patient care at primary healthcare centers in Saudi Arabia.

MATERIALS AND METHODS: This cross-sectional study was conducted at primary healthcare centers (PHCs) under the MOH in Saudi Arabia between October 2018 and February 2019. Study included all Saudi adult patients aged 18 years or older attending the selected PHCs of MOH. Patients who had difficulty in comprehending were excluded. Data was collected by using a structured questionnaire based on the Kano model for the assessment of patients' expectations of the quality of care and provided services. Data was entered and analysed using SPSS. Chi-square test and t-test were used to test for statistical significance.

RESULTS: The study included a total of 243 patients from 10 PHCs, 51% from consulting PHCs and 49% from nonconsulting PHCs. Response rate was 97.2%, and 44.9% respondents were males. Of the 18 attributes chosen for our study, 14 were one-dimensional, three belonged to the attractive type, and one was indifferent type. The top three one-dimensional attributes were “friendliness and respectfulness of the clinic receptionist,” “friendliness and respectfulness of the nurses and laboratory staff,” and “care and attention of the doctor”.

CONCLUSION: The investors and policymakers need to turn their attention to assisting in the privatization of governmental services by creating a good climate for both local and international investors.

Keywords: Kano model, patient's satisfaction, primary healthcare, quality attributes

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The healthcare system in Saudi Arabia has increased and improved significantly over recent decades. The Public Health Department established in Makkah by a Royal Decree in 1925, was the first health authority in Saudi Arabia. This department was responsible for sponsoring and monitoring free healthcare for the population. The increasing range of demand for healthcare services in Saudi Arabia at that time, including the care for pilgrims, created the need to establish a Public Health Council. This council, the supervisory board of the highest level in Saudi Arabia, oversaw all aspects of healthcare, including all hospitals and healthcare centers in the country.

The majority of people continued to depend on traditional medicine, and the incidence of epidemic diseases remained high among the population. Eventually, it became necessary to create a large specialized organization to deal with health affairs. Consequently, the Ministry of Health (MOH) was established in 1950. The MOH, with a total of 274 hospitals (41,835 beds) and 2325 primary healthcare centers (PHCs), is the primary government body that provides and finances healthcare services in Saudi Arabia. The MOH services make up 60% of the entire health services in Saudi Arabia. The remaining health services are provided by other governmental agencies (e.g., Armed Forces Medical Services), referral hospitals (e.g., King Fahad Medical City), and the private sector.

The Saudi Health Council established in 2014, is headed by the Ministry of Health and has representatives from other governmental and private health sectors. The vision of the Saudi Health Council is to coordinate and integrate all health authorities in Saudi Arabia and ensure access to a distinct level of health by improving health and reducing the rates of illness, disability, and death. Its mission is to provide high-quality health services conveniently and safely, prevent duplication and waste of resources, ensure equitable distribution of health services, and work with health authorities and related sectors to ensure the implementation of national programs that contribute to the enhancement of health.

Healthcare is a main focus of Vision 2030, which is a comprehensive plan to reform the entire economic structure of Saudi Arabia through the National Transformation Program (NTP). The NTP’s established strategic objectives of the MOH are to improve the quality of healthcare services, expand privatization of governmental services, create an attractive environment for both local and international investors, and enhance their confidence in the economy, to improve the infrastructure, facility management, and safety standards in healthcare facilities.

The healthcare system in Saudi Arabia is at the moment undergoing a process of reform through the NTP. Patient satisfaction is the ultimate goal of any healthcare system. The administrations of healthcare systems should have comprehensive views of high-quality healthcare delivery system. Patient satisfaction must be addressed to improve the quality of healthcare as well as other traditional quality indicators. Some processes and organizations should be redesigned to improve service quality and remove any barriers. Patients expect high-quality medical services, and their opinions and perceptions are crucial for the evaluation of medical service system.

The aim of this study was to determine the quality attributes of patient’s care using the Kano model on PHCs of MOH in Saudi Arabia. The objectives of the study were to use the Kano model to assess patient satisfaction for the services provided and identify those that influence satisfaction with PHCs of MOH in Saudi Arabia.

Various methods including Kano model, developed by Noriaki Kano, a Japanese Professor in 1984, are used to assess patients’ satisfaction. This model helps to understand how consumers progress, assess, and distinguish quality factors and focus on characteristics that contribute to customer satisfaction. We used this model in our study because it acts as a tool to analyze and rank the opinions of the customer and also identify those things that are necessary for the enhancement of customer satisfaction. It is hoped that the results will offer some insights into policymaking to aid the NTP in the expansion of the privatization of governmental services.

Materials and Methods

This study was designed as a descriptive cross-sectional study. It was carried out in PHCs under the MOH in Saudi Arabia during the period from October 2018 to February 2019. All Saudi adult patients aged 18 years or older attending the selected PHCs of MOH and able to communicate comfortably were included. Children under the age of 18 years and patients who had difficulty in comprehending were excluded.

The sample size was calculated using the following formula:

\[ n = \frac{4PQ}{d^2} \]

where \( n \) = sample size, \( P \) = prevalence, \( Q = 100 - P \), and \( d \) = allowable error (5%).
The prevalence used in the previous formula was based on quantitative satisfaction model to ensure the highest level of satisfaction.\cite{16}

\[ N = \frac{4 \times 0.82 \times 0.18}{(0.05)^2} = 236 \]

The minimum recommended sample size is 236 patients.

The sampling techniques used in this study were convenient sampling at the level of General Directorates of Health Affairs and multistage simple random sampling at the level of PHCs and patients’ selection. In the first stage, all five regions of Saudi Arabia were included (Central, Western, Eastern, Northern, and Southern region). The General Directorates of Health Affairs were selected conveniently as follows: Riyadh City, Makkah City, Dammam City, Tabuk City, and Asir “Abha City.” Then, two PHCs (one consulting, “which provides the services of family medicine with major medical specialties such as internal medicine and general surgery,” and one nonconsulting “that only provides family medicine care”) were randomly selected from each directorate. From each PHC, 25 patients were randomly selected. The patients’ randomization technique was as follows: from each PHC, the data were collected from any patient who was willing to participate until a maximum of fifty respondents was reached. Then, 25 respondents out of the 50 were selected randomly. The randomization tool used to select the PHCs and patients was the Random Number Generator in Excel.

The Kano model classifies customer expectations and requirements into five categories, as follows: (i) must-be quality is an expected requirement that can extremely dissatisfy a customer if not fulfilled, (ii) one-dimensional quality is a desired requirement that results in dissatisfaction when not fulfilled, (iii) attractive quality is an exciting requirement that does not cause any dissatisfaction when not fulfilled, (iv) indifferent quality is a requirement that does not result in either customer satisfaction or dissatisfaction and (v) reverse quality is a requirement that causes dissatisfaction and varies from customer to customer.\cite{14}

Data were collected by using a structured questionnaire based on the Kano model for the assessment of patients’ expectations of the quality of care and provided services. The questionnaire included both categorical and numerical variables. The Kano analysis method was used to classify the characteristics of the attributes into must-be quality, one-dimensional, attractive, indifferent, and reverse qualities. The classification of each attribute was calculated by using the functional and dysfunctional method [Table 1].

Each question had two parts: how the customers felt if that attribute was present (functional form of the question), and how the customers felt if that attribute was absent (dysfunctional form of the question). For each part of the questions, the customer selected one of the five responses as follows: I like it that way, it must be that way, I am neutral, I can live with it that way, and I dislike it that way. The responses were then evaluated into quality dimensions on the basis of how the respondents perceived the functional and dysfunctional forms of the quality attribute [Table 1].

Customer’s satisfaction coefficients (CS) were calculated. The CS provides the average impact of a product requirement on the satisfaction of all users or customers. It indicates how strongly a feature of a product impacts on the user or customer satisfaction, or the other hand, how strongly the nonfulfillment of a product requirement or feature influences a user’s or customer’s dissatisfaction.\cite{17} Satisfaction index (SI) is the positive CS-coefficient, whereas dissatisfaction index (DI) is a negative CS-coefficient. The following are the computation formula for SI and DI:

\[
SI = \frac{A + O}{A + O + M + I}
\]
\[
DI = \frac{(-1) \times O + M}{A + O + M + I}
\]

Data were entered and analyzed by using IBM Corp. Released 2017. IBM SPSS Statistics for Windows, Version 25.0. Armonk, NY: IBM Corp. Comparative analysis was carried out using Chi-square test, Fisher’s exact test, and t-test accordingly. Data were presented as frequencies for the categorical variables and mean ± standard deviations for the numerical variables. The results were declared with significance at alpha <0.05.

Ethical approval was obtained from the Institutional Review Board vide Letter No. 18-306E dated 03/07/2018 and informed written consent was taken from all participants. The participants were made aware of the anonymity of their participation and were informed that under no circumstances would any of their personal identifying information be collected or revealed or published. All the data collection forms were strictly confidential and accessible to the researcher only.

**Results**

A total of 243 patients from 10 PHCs, 124 patients from consulting PHCs (51%) and 119 patients from nonconsulting PHCs (49%), participated. Of the 250 patients, 109 males (44.9%) and 134 females (55.1%) responded, giving a response rate of 97.2. Thirty-eight (15.6%) respondents were aged between 18 and 25 years, 78 patients (32.1%) between 26 and 35 years, 56 (23.1%) between 36 and 45 years, 55 (22.6%) between 46 and 55 years, and 16 patients (6.6%) aged...
56 and older. Of those, 80 patients (32.9%) had had secondary school education, 143 patients (58.8%) were university graduates, and 174 patients (71.6%) were married. The distribution of the respondents according to professions was as follows: 40 (17%) were students, 88 (36%) were governmental employees, 61 (25%) were employed in the private sector, 21 patients (9%) were homemakers, 18 (7%) were retired and there were 15 (6%) others [Table 2].

The study participants’ responses regarding attributes of PHCs according to Kano model revealed that of the 18 attributes chosen for our study, 14 belonged to the One-dimensional type, three were the Attractive type, and one was Indifferent. The top three one-dimensional attributes were “Friendliness and respectfulness of the clinic receptionist,” “Friendliness and respectfulness of the nurses and laboratory staff,” and “Care and attention of the doctor.” The attractive attributes chosen were “Unified electronic medical record,” “Display of educational films in the waiting room,” and “Advanced radiology services such as MRI,” “Minor operating room” was the only indifferent attribute [Table 3].

The patients indicated that they would be most satisfied if the following attributes were present: “suitable working hours of the clinic,” “friendliness and respectfulness of the clinic receptionist,” and “quick response by the doctors,” and the least important for their satisfaction was “minor operating room” [Table 4].

On the other hand, they would be most dissatisfied if the following attributes were absent: “friendliness and politeness of the clinic receptionist,” “friendliness and respectfulness of the nurses and laboratory staff,” and “cleanliness of the PHC,” and the least important was “minor operating room” [Table 5].

Patients attending the consulting PHCs ranked “friendliness and respectfulness of the clinic receptionists” as the top one-dimensional attribute (63%), followed by “friendliness and respectfulness of the nurses and laboratory staff” (60%), and in comparison to 57% and 54% of those in the nonconsulting PHCs, no significant statistical difference was found regarding all items [Table 6].

We observed differing responses to attributes according to the category of PHC. Patients in consulting PHCs ranked “advanced radiology services such as MRI” as the top attractive attribute (34%), followed by “unified electronic medical record” (32%) and “display of educational films in the waiting room” (27%). Patients in the nonconsulting PHCs, on the other hand, ranked the “display of educational films in the waiting room” as the top attractive attribute (39%), followed by “unified electronic medical record” (35%) and “advanced radiology services such as MRI” (29%). A significant

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**Table 1: Kano evaluation table**

| Customer requirements | Dysfunctional form of the question | Functional form of the question |
|-----------------------|-----------------------------------|---------------------------------|
| (1) I like it that way | Q                                 | Q                               |
| (2) It must be that way| A                                 | R                               |
| (3) I am neutral      | A                                 | R                               |
| (4) I can live with it that way | A | R                               |
| (5) I dislike it that way | O                                 | R                               |

O=One-dimensional, A=Attractive, I=Indifferent, M=Must-be, R=Reverse, Q=Questionable

**Table 2: Sociodemographic characteristics of the patients attending primary healthcare centers (n=243)**

| Sociodemographic characteristics | Frequency (%) |
|----------------------------------|---------------|
| Gender                           |               |
| Males                            | 109 (44.9)    |
| Females                          | 134 (55.1)    |
| Age (years)                      |               |
| 18-25                            | 38 (15.6)     |
| 26-35                            | 78 (32.1)     |
| 36-45                            | 56 (23.1)     |
| 46-55                            | 55 (22.6)     |
| 56 years and older               | 16 (6.6)      |
| Education                        |               |
| Illiterate                       | 3 (1.2)       |
| Elementary                       | 1 (0.4)       |
| Intermediate                     | 16 (6.6)      |
| Secondary                        | 80 (32.9)     |
| University                       | 143 (58.8)    |
| Marital status                   |               |
| Married                          | 174 (71.6)    |
| Single                           | 69 (28.4)     |
| Occupation                       |               |
| Student                          | 40 (17)       |
| Governmental employee            | 88 (36)       |
| Private-sector employee          | 61 (25)       |
| Homemakers                       | 21 (9)        |
| Retired                          | 18 (7)        |
| Others                           | 15 (6)        |
difference was only observed between the consulting and nonconsulting PHC in “display of educational films in the waiting room” attribute ($P = 0.047$) [Table 7].

**Discussion**

Nowadays, patients consider themselves as purchasers of health services.\(^8\) They expect high-quality medical services, and their opinions and perceptions are crucial for the evaluation of medical service system.\(^12\) The concern of investors in health care is always to have economically effective facilities where excellent efficient service is provided.

The MOH has already started implementing the NARTAQY Program, which targets the PHCs staff, including managers, reception staff, customer service, and nurses. The program’s aim is to improve the performance of PHCs staff and raise the level of patients' satisfaction. The NARTAQY initiative was designed to help individuals and workers adopt a new career pattern, as well as inspire those around them to have an approach aligned with the vision of the future.

Our study’s aim was to determine quality attributes of patient care in PHCs of MOH in the entire Saudi Arabia

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**Table 3: The classification of the attributes according to Kano model ($n=243$)**

| Attribute                                           | Frequency | O  | A  | I  | M  | R  | Q  |
|-----------------------------------------------------|-----------|----|----|----|----|----|----|
| A1 Distance from home to the PHC                    |           | 86 | 67 | 36 | 52 | 0  | 2  |
| A2 A parking lot                                    |           | 126| 26 | 24 | 64 | 1  | 2  |
| A3 Working hours of the clinic                      |           | 114| 47 | 42 | 37 | 1  | 2  |
| A4 Cleanliness of the PHC                           |           | 125| 14 | 13 | 90 | 0  | 1  |
| A5 Token display system                             |           | 92 | 41 | 48 | 60 | 0  | 2  |
| A6 Display of educational films in the waiting room |           | 55 | 81 | 76 | 29 | 0  | 2  |
| A7 Friendliness and politeness of the clinic receptionist |       | 146| 14 | 9  | 74 | 0  | 0  |
| A8 Friendliness and politeness of the nurses and laboratory staff | | 138| 14 | 11 | 80 | 0  | 0  |
| A9 Care and attention of the doctor                 |           | 130| 14 | 12 | 84 | 1  | 2  |
| A10 Quick response by the doctors                   |           | 123| 33 | 22 | 64 | 0  | 1  |
| A11 Quick response by nurses and laboratory staff   |           | 119| 29 | 17 | 77 | 0  | 1  |
| A12 Unified electronic medical record               |           | 71 | 82 | 50 | 38 | 2  | 0  |
| A13 Advanced radiology services such as MRI         |           | 63 | 77 | 70 | 32 | 1  | 0  |
| A14 Advanced laboratory services such as cultures   |           | 75 | 70 | 65 | 33 | 0  | 0  |
| A15 Minor operating room                            |           | 48 | 67 | 83 | 34 | 10 | 1  |
| A16 Electronic referral system                      |           | 76 | 65 | 60 | 39 | 1  | 2  |
| A17 Examination explained by doctors                |           | 108| 46 | 24 | 65 | 0  | 0  |
| A18 Get informed about the medical condition        |           | 128| 25 | 21 | 67 | 0  | 2  |

O=One-dimensional, A=Attractive, I=Indifferent, M=Must-be, R=Reverse, Q=Questionable, PHC=Primary healthcare center, MRI=Magnetic resonance imaging

| Attribute                                             | Satisfaction index (most satisfaction=1.0; least satisfaction=0) |
|-------------------------------------------------------|------------------------------------------------------------------|
| Working hours of the clinic                           | 0.67                                                             |
| Friendliness and politeness of the of the clinic receptionist | 0.66                                                             |
| Quick response by the doctors                         | 0.64                                                             |
| Distance from home to the PHC                          | 0.63                                                             |
| A parking lot                                         | 0.63                                                             |
| Friendliness and politeness of the nurses and laboratory staff | 0.63                                                             |
| Unified electronic medical record                      | 0.63                                                             |
| Examination explained by doctors                      | 0.63                                                             |
| Get informed about the medical condition              | 0.63                                                             |
| Quick response by nurses and laboratory staff          | 0.61                                                             |
| Care and attention of the doctor                      | 0.60                                                             |
| Advanced laboratory services such as cultures          | 0.60                                                             |
| Electronic referral system                            | 0.59                                                             |
| Advanced radiology services such as MRI               | 0.58                                                             |
| Cleanliness of the PHC                                | 0.57                                                             |
| Educational films displayed in the waiting room        | 0.56                                                             |
| Token display system                                  | 0.55                                                             |
| Minor operating room                                  | 0.50                                                             |

PHC=Primary healthcare center, MRI=Magnetic resonance imaging
using the Kano model. The review of literature revealed a few studies that addressed patient satisfaction in Saudi Arabia, using the Kano model in particular. Most of the studies assessing the level of satisfaction were conducted at the level of single center or hospital, or a single region.

Al Dheshi et al. in their study (2016) discussed the results of the application of the Kano model on inpatient expectations in the twenty services provided. They enrolled 100 patients from the medical and surgical wards. The highest scoring “must” attributes were cleanliness and quick response by nurses. The most attractive were provision of magazines and the provision of a private room. The most indifferent was allowing visitors in at all times.[18]

Upon calculation of SI in our study, we found that “working hours at the clinic” had the highest SI (0.67). A study conducted by Almoajel showed that about half (46.5%) of the their study participants agreed that the working hours of the clinic suited them.[19] This can be explained by the fact that in 2014, the MOH extended the working hours of the PHCs up to 12 h, or up to 24 h in some cases.[20]

In a cross-sectional facility-based study conducted in 2015, on a sample of 370 patients selected by systematic sampling in which the data were collected by a pretested questionnaire, the patient level of satisfaction was 82%. In addition, the reasons for satisfaction were cleanliness of the facilities (33.1%) and technical competence of the staff (24.2%).[16] Our study found that the patients would be most dissatisfied if the following attributes were absent: “friendliness and respectfulness of the

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**Table 5: The dissatisfaction index by the absence of an attribute (in order of strength of dissatisfaction)**

| Attribute                                              | Dissatisfaction index (most satisfaction=1.0; least satisfaction=0) |
|--------------------------------------------------------|---------------------------------------------------------------------|
| Friendliness and respectfulness of the clinic receptionist | -0.91                                                               |
| Friendliness and respectfulness of the nurses and laboratory staff | -0.90                                                               |
| Cleanliness of the PHC                                 | -0.89                                                               |
| Care and attention of the doctor                       | -0.89                                                               |
| Quick response by nurses and laboratory staff          | -0.81                                                               |
| Get informed about the medical condition               | -0.81                                                               |
| A parking lot                                          | -0.79                                                               |
| Quick response by the doctors                          | -0.77                                                               |
| Examination explained by doctors                       | -0.71                                                               |
| Working hours of the clinic                            | -0.63                                                               |
| Token display system                                   | -0.63                                                               |
| Distance from home to the PHC                          | -0.57                                                               |
| Electronic referral system                             | -0.48                                                               |
| Unified electronic medical record                       | -0.45                                                               |
| Advanced laboratory services such as cultures          | -0.44                                                               |
| Advanced radiology services such as MRI                | -0.39                                                               |
| Display of educational films in the waiting room       | -0.35                                                               |
| Minor operating room                                   | -0.35                                                               |

PHC=Primary healthcare center, MRI=Magnetic resonance imaging

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**Table 6: Comparison of one-dimensional attributes according to primary healthcare center category**

| Attribute                                               | Consulting PHC % | Nonconsulting PHC % | P-value |
|---------------------------------------------------------|------------------|----------------------|---------|
| Distance from home to the PHC                           | 40.0             | 29.0                 | 0.072   |
| A parking lot                                           | 52.0             | 51.0                 | 0.876   |
| Working hours of the clinic                             | 48.0             | 46.0                 | 0.755   |
| Cleanliness of the PHC                                  | 51.0             | 52.0                 | 0.876   |
| Token display system                                    | 40.0             | 36.0                 | 0.521   |
| Friendliness and politeness of the clinic receptionist  | 63.0             | 57.0                 | 0.340   |
| Friendliness and politeness of the nurses and laboratory staff | 60.0             | 54.0                 | 0.345   |
| Care and attention of the doctor                        | 56.0             | 51.0                 | 0.435   |
| Quick response by the doctors                           | 55.0             | 46.0                 | 0.161   |
| Quick response by nurses and laboratory staff           | 51.0             | 47.0                 | 0.533   |
| Advanced laboratory services such as cultures           | 31.0             | 31.0                 | 1.0     |
| Electronic referral system                              | 34.0             | 29.0                 | 0.402   |
| Examination explained by doctors                        | 48.0             | 40.0                 | 0.210   |
| Get informed about the medical condition                | 55.0             | 50.0                 | 0.436   |

PHC=Primary healthcare center
Table 7: Comparison of attractive and indifferent attributes according to primary healthcare center category

| Attributes                                      | Consulting PHC | Nonconsulting PHC | P-value |
|------------------------------------------------|----------------|-------------------|---------|
| Attractive                                     |                |                   |         |
| Display of educational films in the waiting room | 27.0           | 39.0              | 0.047   |
| Unified electronic medical record              | 32.0           | 35.0              | 0.621   |
| Advanced radiology services such as MRI        | 34.0           | 29.0              | 0.402   |
| Indifferent                                    |                |                   |         |
| Minor operating room                           | 31.0           | 37.0              | 0.324   |

PHC=Primary healthcare center, MRI=Magnetic resonance imaging

clinic receptionist,” “friendliness and respectfulness of the nurses and laboratory staff,” and “cleanliness of the PHC.” Mohammed et al.’s study revealed that satisfied patients were more likely to have good doctor–patient relationship, which is central to a high-quality healthcare system and an improvement of health outcome.[16]

In our study, patients in consulting PHCs ranked “advanced radiology services such as MRI” as the top attractive attribute (34%). According to Al-Doghaither’s study (2001), the mean satisfaction for 301 patients in Kuwait PHCs with radiology services was 61.6%.[21] The results in our study revealed no significant consistent pattern of association of satisfaction between the studied attributes and PHC’s category, except for the “display of educational films in the waiting room” as an attractive attribute [Table 7].

In a cross-sectional study by Alfaqeeh et al., 2017, a total of 935 responses were obtained from five rural and five urban PHCs in the Riyadh province. They showed that there was no significant relationship between the region someone resides in (urban vs. rural) and the negative impact of clinic hours on respondents seeing their doctors (P = 0.66).[22] In our study, we observed “working hours at the clinic” as an attribute and compared it according to the category of PHCs (consulting vs. nonconsulting). No significant difference was found in our study (P = 0.755).

Conclusion

A “unified electronic medical record,” “the display of educational films in the waiting room,” and “advanced radiology services such as MRI” were generally not expected, but added extra value when implemented in a PHC, though they did not cause dissatisfaction when not available.

Therefore, investors and policymakers need to direct their focus on the privatization of governmental services by creating an attractive environment for both local and international investors. Furthermore, an improvement of the infrastructure, facility management, and safety standards in healthcare facilities are necessary for improvement of confidence in our economy.

Multicenter collaborative work in Saudi Arabia is needed to demonstrate the importance of assessing patients’ satisfaction using a method that expresses patients’ opinion and preferences. Further studies are needed to assess other important issues such as workforce, policy, and procedures.

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Conflicts of interest
There are no conflicts of interest.

References

1. Algarni N, McLaughlin P, Al-Ashaab A, Hamad R. Identifying factors influencing the leadership performance of Saudi’s healthcare sector. J Organizational Manage Stud 2018;2018:1-17.
2. About the Ministry – Overview; 2018. Available from: https://www.moh.gov.sa/en/Ministry/About/Pages/Vision.aspx. [Last accessed on 2018 Oct 13].
3. Almalki M, Fitzgerald G, Clark M. Health care system in Saudi Arabia: An overview. East Mediterr Health J 2011;17:784-93.
4. Statistical Yearbook-Statistical Yearbook; 2018. Available from: https://www.moh.gov.sa/en/Ministry/Statistics/book/Pages/default.aspx. [Last accessed on 2018 Oct 15].
5. Saudi Health Council; 2019. Available from: http://shc.gov.sa/ar/Pages/default.aspx. [Last accessed on 2018 May 24].
6. Available from: https://www.tamimi.com/law-update-articles/vision-2030-and-the-opportunities-it-represents-in-healthcare-in-saudi-arabia/.[Last accessed on 2017 Oct 26].
7. National Transformation Program. Saudi Vision; 2030. Available from: http://vision2030.gov.sa/en/programs/NTP. [Last accessed on 2017 Oct 29].
8. Prakash B. Patient satisfaction. J Cutan Aesthet Surg 2010;3:151-5.
9. Cowing M. Health care delivery performance: Service, outcomes, and resources stewardship. Permanent J 2009;13:72-8.
10. Al Yousif N, Hussain H, Maharlu M. Health care services utilization and satisfaction among elderly in Dubai, UAE, and some associated determinants. Middle East J Ageing 2014;11:25-33.
11. Rehin K, Shekhar S. A closer look at the patients’ satisfaction with the services offered at government hospitals. Asian J Nurs Educ Res 2016;6:381.
12. Amin M, Zahora Nasharuddin S. Hospital service quality and its effects on patient satisfaction and behavioral intention. Clin Gov Int J 2013;18:238-54.
13. Malcolm E. Home. Kano Model; 2017. Available from: https://www.kanomodel.com/. [Last accessed on 2017 Oct 29].
14. Harijith R, Naduthodi H. Kano model customer satisfaction analysis of medical services. Int Res J Eng Technol 2017;4:1426-9.
15. George B. Sample size estimation and power calculation – A guide to biomedical researchers. Acad Pulmonary Crit Care Med 2013;15:25-34.

16. Mohamed EY, Sami W, Alotaibi A, Alfarag A, Almutairi A, Alanzi F. Patients’ satisfaction with primary health care centers’ services, Majmaah, Kingdom of Saudi Arabia. Int J Health Sci (Qassim) 2015;9:163-70.

17. Bilgili B, Erciş A, Ünal S. Kano model application in new product development and customer satisfaction (adaptation of traditional art of tile making to jewelries). Procedia Soc Behav Sci 2011;24:829-46.

18. Al Dheshi A, Hejaili F, Binsalih S, Al Sayyari A. Application of the Kano model for determining service attributes preferences of hospital inpatients. Int J Bus Soc Sci 2016;7:8592.

19. Almoajel A. Patient satisfaction with primary health care in Jubail City, Saudi Arabia. World J Med Sci 2014;11:225-64.

20. MOH News-The New Working Hours’ System at MOH Health Centers and Hospitals Adopted; 2014. Available from: https://www.moh.gov.sa/en/Ministry/MediaCenter/News/Pages/News-2014-03-23-001.aspx. [Last accessed on 2018 Oct 15].

21. Al-Doghaither AH, Abdelrhman BM, Saeed AA, Al-Kamil AA, Majzoub MM. Patients’ satisfaction with primary health care centers services in Kuwait city, Kuwait. J Family Community Med 2001;8:59-65.

22. Alfaqeeh G, Cook EJ, Randhawa G, Ali N. Access and utilisation of primary health care services comparing urban and rural areas of Riyadh Providence, Kingdom of Saudi Arabia. BMC Health Serv Res 2017;17:106.