



The Impact of Digital Transformation in Treatment on Customer Satisfaction at Al Mafraq Hospital: A Case Study

Fayqa Hassan¹

¹Researcher, United Arab Emirates

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ABSTRACT

Digital transformation in the field of healthcare and treatment has significantly impacted customer satisfaction in several ways. Service quality, waiting time, trust and cost are factors that were digitalized at Al Mafraq Hospital. In this case study, these factors are examined to investigate the digitalization of treatment on patients' satisfaction. Customer satisfaction is mostly affected by service quality. The result of this study reinforces the need of hospital managers to focus on the basic dimensions of service quality from a digital perception, as it is necessary to start improving and developing service quality in order to increase customer satisfaction. Digitalizing of treatment procedures need to be accomplished from different dimensions, in order to enhance the satisfaction of Mafraq Hospital clients. Key accomplishments at Al Mafraq Hospital include 80% of patients expressing satisfaction with doctor-patient communication, an average consultation waits time of 20 to 45 minutes, though pharmacy wait times are notably longer due to insurance processing, and about 95% of hospital staff finding medical fees reasonable to high. The results revealed that digital transformation of treatment is important to focus on providing successful, high-quality services. Effectively improving service quality is essential and critically important to patient's satisfaction.

1. INTRODUCTION

Al Mafraq Hospital is one of the fastest developing hospitals in the Emirate of Abu Dhabi. It is a specialized hospital with more than 2,000 employees and includes 451 beds. It provides medical services including surgery, care and internal medicine services, and it also runs the largest burn unit department in the country. In addition to its global reputation for its keen commitment to patient care and customer services [1], [2]–[4]. If an initiative entitled "Patient Service is our priority" was launched and included a large team of Mafraq Ambassadors in the hospital, they all work within the framework of their keenness and commitment towards advancing the treatment standards of patient care in the various activities in the hospital.

Quality is an essential and necessary component in medical care departments around the world, to know the measurement of quality assurance, we experimented with a consumer loyalty survey in the office on the basis that the customer is the main thing in management. Fulfillment of office providers can influence the outcome and expectation of treatment [5]–[8]. In order to be practical and straightforward in the methods of the method, its superior ability to meet the needs that it should have, access to the required materials and access to the experts expected to perform the course, the various factors, and the main and important parts of the medical services frameworks [9]–[12].

One of the most important types of assistance to patients is to ensure compliance with clinical

considerations is essential and daily, if we conduct an examination to see how the fulfillment of clinical treatment affects, such as specialist discussion, instruction and guidance instructions, accessibility, cost value, working hours at the emergency clinic in Mafraq [13]–[16].

2. LITERATURE REVIEW

Al Mafraq Hospital was established on August 7, 1983, and one of the major medical clinics established in the Emirate of Abu Dhabi, the Emergency Clinic is considered one of the fastest developing and innovative areas in the United Arab Emirates [13]–[16]. The emergency clinic has gained its position and fame through its diverse offices, distinguished clinical departments and its various types in the departments that can be reached [17]. As there are 36 units and departments in the clinic, some departments have practical experience in clinical areas of distinct interest that are highlighted [18]–[21]. At Mafraq Hospital, it deals with approximately 1000 patients every day. Despite the multitude of open heart and kidney functions, the clinic has achieved its absolute global position by pioneering exceptionally effective and complex medical methods and procedures [22]–[25].

Transfer, eardrum transfer and treatment of precancerous neoplasms are performed by profoundly qualified experts from both advanced devices [26]. Al Mafraq Hospital has earned a bad reputation for providing outstanding clinical assistance and registering it as a record of extraordinary accomplishments that ensure that the clinic achieves quality by equipping it with new, regulated, more accurate and detailed clinical equipment for therapeutic and indicative purposes [27]–[30].

Maintaining professional and loyal clients is paramount, as retaining existing clients is more cost-effective than acquiring new ones [31]. Customer loyalty hinges on the quality of ongoing management and client retention. In service provision, when clients' expectations are met, responsiveness and care are crucial [5]–[8]. Customer loyalty embodies a fundamental aspect of corporate strategy, involving value creation, anticipating and fulfilling client needs, and showcasing commitment to meeting essential requirements [32]. Quality management and customer loyalty are pivotal factors in enhancing

an institution's performance [33]–[35].

Customer desire is the difference between customer desires before acquiring departments and customer feedback after obtaining departments. Whereas consumer loyalty is primarily dependent on the increased importance of decent customer management [36]–[39].

As for the buyer's desire, it is the extent to which the customer meets the ideal suitable results. If the customer has ideas as a primary concern before evaluating any item [18]–[20]. Developing a clear appreciation of an item or department that is a key component of customer resilience [1], [40], [2], [3], [41], [42].

During the course of these visits, we had the option of directing a survey of 20 fulfillment inquiries to nearly 100 patients just for a regular visit and an office evaluation of 7 days. This exam was completed from October 20, 2019 to October 29, 2019 [9]–[12]. This questionnaire shows a small portion of the patient molecules, for example: age, gender, occupation, identity, clinical basis, and the mentioned subdivision number [8], [9], [43], [44]. After the survey and the gathering of the feedback, the categories were divided, such as cost, accessibility, clinical considerations, delaying or advancing time, and the final evaluation that which will give us an away from of the outcomes [6], [7], [45], [46].

Patient consideration offices are evaluated through various measures, the first and most important of which is consumer loyalty in medical services offices [10], [13], [47], [48]. With regard to medical care, consumer loyalty is assessed on a regular and essential basis [21]–[23]. The aim of this examination is to assess consumer loyalty in relation to cost suspension, time, clinical treatment, and ability to know access to departments through the main provided departments in the outpatient department of the clinic [15], [49]–[51].

The project entailed electronically transmitting prescriptions from the physician's clinic to the pharmacy as soon as they were created, allowing the pharmacy team to begin processing them before the patient arrived at the counter for pick-up [2]–[4]. This intervention led to a notable decrease in waiting time, as indicated by Qlik View Customer Satisfaction tool results, with waiting time reduced from 21.5 to 4 minutes. According to the patient satisfaction survey, 82% of patients

expressed either extreme satisfaction or satisfaction with the shortened waiting time [16], [52]-[54].

The central aim of this study was to investigate the link between the perceived quality of healthcare services and patient satisfaction and loyalty within Mafrq Governmental Hospital [1]. The research involved surveying 400 patients, and an advanced statistical method, PLS-SEM, was applied for analysis [19], [21], [53], [55]. Finding indicated that services quality had positive and direct influence on both patient satisfaction and patient loyalty. Additionally, customer satisfaction served as an intermediary factor in the relationship between service quality and customer loyalty [23]-[25], [56].

The study suggests that administrators and healthcare professionals in public hospitals should launch ongoing quality enhancement initiatives and closely oversee healthcare quality to cultivate patient satisfaction and, consequently, foster patient loyalty. Subsequent investigations could explore additional elements like trust, perceived value and the available of hospital resources that have the potential to influence patient satisfaction and loyalty [57].

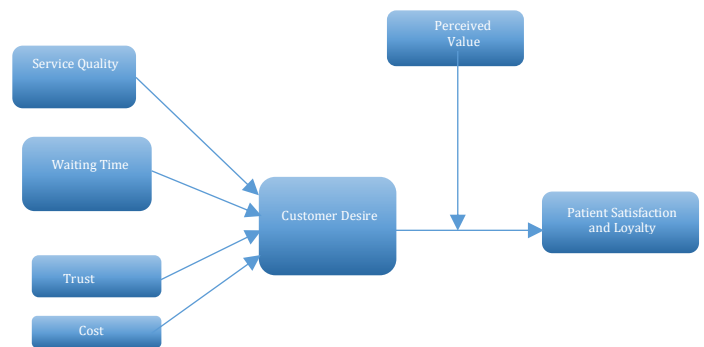
Research Gap: a research gap exists in understanding how healthcare institutions, including Al Mafrq Hospital, can employ specific strategies to significantly reduce patient waiting times and enhance satisfaction. While previous studies have explored general factors influencing patient satisfaction, there's a dearth of research examining the impact of operational changes, like electronic prescription transmission, on waiting times and patient contentment. This gap highlights the necessity for research investigating the effectiveness of practical interventions in improving patient experiences and their consequent influence on overall satisfaction and loyalty, particularly in high-volume healthcare settings.

3. METHODOLOGY

The following research will be conducted using explanatory methodology where we will see level of effect of the chosen variables on the management dilemma also answering these questions how, when, why, what and where [24], [25]. Furthermore, a basic statistical analysis will be performed on the data collected by conducting

online survey.

Variables	Types	Category
Service Quality	Independent variable	Demographic
Waiting Time	Independent variable	Demographic
Trust	Independent variable	Demographic
Cost	Independent variable	Demographic
Customer Desire	Mediating variable	Dichotomous
Patient Satisfaction and Loyalty	Dependent variable	Demographic
Perceived Value	Moderating variable	Dichotomous



3.1. Research Questions:

- RQ1: Does digitalizing service quality effect on customer desire?
- RQ2: Do you think that waiting time has impact on customer desire?
- RQ3: Do you think that is effect of trust on customer desire?
- RQ4: How do you that cost has impact on customer desire?
- RQ5: Is there any effect of customer desire on patient satisfaction and loyalty?
- RQ6: Do you think that there is effect of perceived value on relationship between customer desire and patient satisfaction and loyalty?

3.2. Hypothesis Statements:

- H0(RQ1): There is no effect of service quality on customer desire.
- H1(RQ1): There is an effect of service quality on customer desire.

- H0(RQ2): There is no effect of waiting time on customer desire.
- H1(RQ2): There is an effect of waiting time on customer desire.
- H0(RQ3): There is no effect of trust on customer desire.
- H1(RQ3): There is an effect of trust on customer desire.
- H0(RQ4): There is no effect of cost on customer desire.
- H1(RQ4): There is an effect of cost on customer desire.
- H0(RQ5): There is no effect of customer desire on patient satisfaction and loyalty.
- H1(RQ5): There is an effect of customer desire on patient satisfaction and loyalty.
- H0(RQ6): There is no effect of perceived value on relationship between customer desire and patient satisfaction and loyalty.
- H1(RQ6): There is an effect of perceived value on relationship between customer desire and patient satisfaction and loyalty.

4. DATA COLLECTION

Data on customer satisfaction at Al Mafraq Hospital was gathered through a structured questionnaire distributed via Google Forms to respondents within the hospital's service area. The questionnaire consisted of two sections: demographic questions to gather respondent information and research-based questions for study-related insights. This method ensured effective and consistent data collection. In terms of research methodologies, quantitative analysis focused on numerical data and statistical patterns, providing a quantitative understanding of customer satisfaction levels. Simultaneously, qualitative methods explored nuanced aspects of customer satisfaction experiences. By employing a mixed-methods approach, this study aims to offer a comprehensive perspective on customer satisfaction at Al Mafraq Hospital, combining both quantitative metrics and qualitative insights. In this assignment I used quantitative data collection because I collect answers and information using survey which is a type of quantitative data collection. And for the survey deployment methods I collected through online surveys. The research data on customer satisfaction at Al Mafraq Hospital was collected using simple random sampling. To ensure the

success of the research, a sample of 54 participants was selected. Simple random sampling involves randomly selecting participants from a larger population, allowing the researcher to collect study data in an unbiased manner, minimizing the risk of misleading results and ensuring optimal research outcomes.

5. DATA ANALYSIS AND DISCUSSION

For my survey on customer satisfaction at Al Mafraq Hospital, I've chosen a Descriptive Analysis approach. This method allows me to summarize key aspects of the collected data, providing insights into central tendencies and distribution patterns. By employing measures like mean scores and graphical representations, such as bar charts, the aim is to offer a clear overview of customer satisfaction levels. This straightforward approach ensures accessibility and understanding, laying the groundwork for actionable insights and potential improvements at the hospital. The following is a descriptive statistical examination for my research topic and the questionnaire is attached in Appendix1:



As we can see here, approximately 67% of the respondents satisfied that service quality they have experienced with our organization while 13% disagree with this statement. In addition, 20.4% of the respondents were neutral which mean neither agree nor disagree.



Around 68.5% of the respondents believe that waiting

time affects their desire to continue using our services. However, 15% chose that they disagree and they don't believe that. 16.7% were neutral.



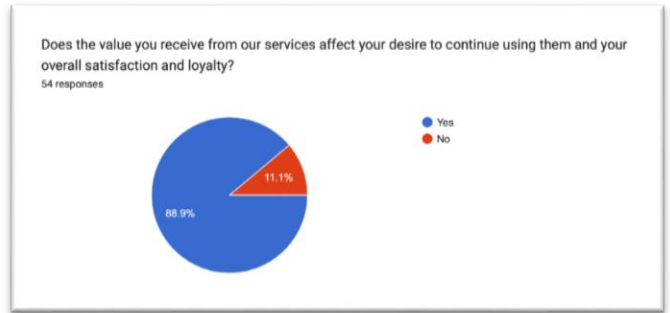
From this chart we can say that 70.3% of the respondents agree that they are trust in our organization in meeting their needs and expectations, which is a very high percentage. While only 11.1% disagree and the think that their trust is not necessary. 18.5% were neutral with this statement.



As we see, around 64.8% of the answer came from people who desire to continue our services affects their satisfaction and loyalty, while 35.2% a very small number of people they answered with no.



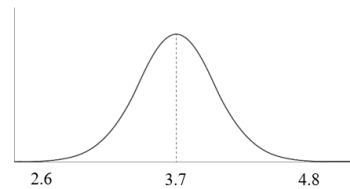
as we can see here, around 40% of the respondents believe that cost of our services impacts their desire to continue using them. However, 36.4% chose that they disagree and they don't believe that. 13.6% were neutral.



For the received value question, we can see that 88.9% of respondents that believe in our services affect their desire to continue using them and their overall satisfaction and loyalty, and remaining 11.1% are answered no.

In my detailed analysis of customer satisfaction at Al Mafrq Hospital, I utilized mean for the average satisfaction, standard deviation to gauge variation, and skewness to assess distribution asymmetry. This combination of descriptive statistics provided a concise yet comprehensive understanding of satisfaction trends, enhancing the depth of insights gained from the survey data.

How satisfied are you with the service quality you have experienced with our organization?	
Mean	3.75925926
Standard Deviation	1.11482607
Skewness	-0.8580101



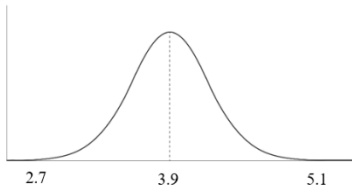
For mean on an average people are giving me responses near to 4. Out of 54 responses maximum people gave me 4 to 5 which mean positive thing. The curve is **left skewness** which mean more negative responses and it is left because there is no impact. Regarding standard deviation, on an average maximum response I'm getting is 4.8 and minimum is 2.6.

	Yes		No
Mean	3.6875	Mean	0.54166667
Standard Deviation	1.1328039	Standard Deviation	1.4725623
Skewness	-0.8093441	Skewness	2.48048699

From this table we can see how the Perceived value have relationship with satisfied that service quality in customer desire and patient satisfaction and loyalty. People who answered Yes which mean

positive thing that strongly agree, but the curve is left skewness. On another side, people who answered No which mean which disagree and the curve is right skewness, which means the people who answered No, more impact on patient satisfaction and loyalty.

To what extent do you believe that waiting time affects your desire to continue using our services?	
Mean	3.9444444
Standard Deviation	1.23497256
Skewness	-0.9520321

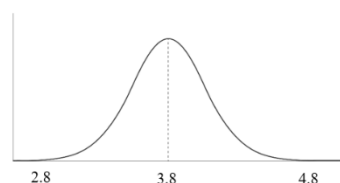


For mean on an average people are giving me responses near to 4. Out of 54 responses maximum people gave me 5 which mean positive thing. The curve is left skewness which mean more negative responses and it is left because there is no impact. Regarding standard deviation, on an average maximum response I'm getting is 5.1 and minimum is 2.7.

Yes		No	
Mean	3.9375	Mean	0.47916667
Standard Deviation	1.27840076	Standard Deviation	1.32069587
Skewness	-0.9625987	Skewness	2.62026354

From this table we can see how the Perceived value have relationship between waiting time in desire to continue using our services and patient satisfaction and loyalty. People who answered Yes which mean positive thing that strongly agree, but the curve is left skewness. On another side, people who answered No which mean which disagree and the curve is **right skewness**, which means the people who answered No, more impact on patient satisfaction and loyalty.

How much trust do you have in our organization in meeting your needs and expectations?	
Mean	3.81481481
Standard Deviation	1.02927111
Skewness	-0.906784

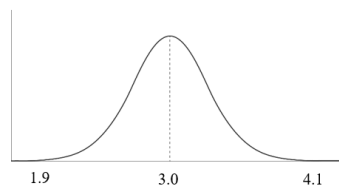


For mean on an average people are giving me responses near to 4. Out of 54 responses maximum people gave me 4 to 5 which mean positive thing. The curve is left skewness which mean more negative responses and it is left because there is no impact. Regarding standard deviation, on an average maximum response I'm getting is 4.8 and minimum is 2.8.

Yes		No	
Mean	3.75	Mean	0.54166667
Standard Deviation	1.0416844	Standard Deviation	1.4725623
Skewness	-0.8838724	Skewness	2.48048699

From this table we can see how the Perceived value have relationship between trust in our organization in meeting their needs and expectations in customer desire with patient satisfaction and loyalty. People who answered Yes which mean positive thing that strongly agree, but the curve is left skewness. On another side, people who answered No which mean which disagree and the curve is right skewness, which means the people who answered No, more impact on patient satisfaction and loyalty.

To what extent does the cost of our services impact your desire to continue using them?	
Mean	3.03703704
Standard Deviation	1.08093186
Skewness	-0.1688435



For mean on an average people are giving me responses near to 3. Out of 54 responses maximum people gave me 3 to 4 which mean positive thing. The curve is left skewness which mean more negative responses and it is left because there no impact. Regarding standard deviation, on an average maximum response I'm getting is 4.1 and minimum is 1.9.

Yes		No	
Mean	3.02083333	Mean	0.4375
Standard Deviation	1.12021243	Standard Deviation	1.18332834
Skewness	-0.1371942	Skewness	2.44666349

From this table we can see how the Perceived value

have relationship between the cost of our services impacts their desire and patient satisfaction and loyalty. People who answered Yes which mean positive thing that strongly agree, but the curve is left skewness. On another side, people who answered No which mean which disagree and the curve is right skewness, which means the people who answered No, more impact on patient satisfaction and loyalty.

6. RECOMMENDATIONS

As a part of the enhanced motivational activities that can be suggested with comnsiderations to the findings of this strudy to further bolster the hospital's service quality, it is recommended that Al Mafrq Hospital introduces more creative and motivational activities, including training sessions, to boost employee motivation, thereby positively impacting customer satisfaction.

7. CONCLUSION

The investigation into customer satisfaction at Al Mafrq Hospital has revealed a significant and positive correlation between the level of digitalizing treatment processes and overall customer satisfaction. The findings strongly suggest that implementing more motivational initiatives and digital practices within the hospital can substantially enhance customer satisfaction.

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