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Health Care Quality: The impact of hospital quality system in private and public sector on patients' satisfaction in Kurdistan region of Iraq

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Abstract

This research focuses on the development of the healthcare system in Kurdistan region in northern Iraq, with particular attention given to the linkage between the quality system introduction by the healthcare providers and patient's satisfaction. The researcher developed three research hypotheses to measure the impact of hospital quality system in private and public sector on patients' satisfaction in Kurdistan region of Iraq. A quantitative method used in order to analyze the current study. The random sampling was carried out in locations in Erbil, Sulayimaniah and Duhok. A total of 1400 questionnaires were distributed, however 993 questionnaires were received and being completed properly. The findings revealed that the result of first hypothesis, developed a system of quality management has significantly predicted patient satisfaction (Beta is weight 0.875, p<.001) this indicates that developed a system of quality management will have a direct positive association with patient satisfaction based on this result the first hypotheses supported. As for second research hypothesis, complex systems of quality managementhas significantly predicted patient satisfaction (Beta is weight 0.571, p<.001) this indicates that complex systems of quality managementwill have a positive association with patient satisfaction based on this results the second research hypotheses supported, and finally as for third research hypothesis, focus strategy has significantly predicted patient satisfaction (Beta is weight 0.529, p<.001) this indicates that the introduction of the system of the quality management will have a positive association with patient satisfaction based on this results the third research hypotheses supported.

Keywords— HealthCare Quality, hospital quality system, private hospital, public hospital, patients' satisfaction, Kurdistan region of Iraq.

I. INTRODUCTION

This study focuses on the development of the healthcare system in Kurdistan region in northern Iraq, with particular attention given to the linkage between the quality system introduction by the healthcare providers and patient's satisfaction. Furthermore, the study aims to examine the determinants of patients' satisfaction in both public and private hospitals in Kurdistan. The rapid development of healthcare markets, the increased competition between both public and private providers and the growing heterogeneity of patients' needs have shown policy makers that it is extremely difficult to satisfy the expectations of all of the stakeholders (Lim et al. 2018). These challenges are mostly visible in emerging economies and developing countries (Yucesan & Gul, 2020). Moreover, in the developing countries which struggle with economic difficulties at least two of three classical dimensions of the healthcare system – financing and health service provision are usually left to market actors, while the public sector limits its activities to governance in this field (Sfantou et al. 2017). But what happens, if a country starts to build a new healthcare system? In such a case, political stability becomes a key factor which ensures the successful implementation of new policy (Anwar & Abd Zebari, 2015). Unfortunately, the study on the new developing countries who are designing and creating new healthcare system is relatively scarce (Kruk et al. 2017). Having a marginal position in the country during the Saddam Hussein dictatorship, the current autonomous position of the region implies a need to create independent healthcare system. The peripheral role of the region during Hussein

reign resulted in underdeveloped system of public healthcare, and the last 15 years of quasi-independence could not compensate for these shortages. Consequently, the growing demand for healthcare services is increasingly met by the private stakeholders. Therefore, the biggest challenge in this regard is to reconcile the needs of the patient, limited public resources with the rapidly growing sector of private healthcare providers and private hospitals in particular. The regional government is trying to design some basic standards of healthcare service quality, yet the role of private hospitals in this regard is substantial, as in recent years many of them have adopted new systems of quality management. Yet, the outcome of these pro-quality measures taken by the major stakeholders for the patients' satisfaction becomes unknown (Maqsood et al. 2017).

Research objectives

The main aim of the study is to carry out a comparative analysis of selected private and public hospitals in Kurdistan region, in order to identify the factors that characterize their quality management methods, and to investigate how hospitals' quality management processes influence patients' satisfaction. This aim can be divided into 5 more detailed research objectives:

1. To determine the effect of hospital quality system in both private and public sector on patients' satisfaction quality management methods in private and public hospitals in Kurdistan region.
2. To identify quality management methods in private and public hospitals in Kurdistan
3. To construct indicators of service quality in private and public hospitals in Kurdistan.
4. To assess whether there is a significant difference in terms of quality management between private and public hospitals in Kurdistan region.

Research Questions

This study aims at an evaluation of the determinants of patient's satisfaction, with particular attention paid to the role of quality management system. Emphasizing patient's decision-making process, in this study the interrelation of patient value with the price, perception of performance, objectified service quality, patient satisfaction and their desires to repurchase and give an advice to others will be investigated. This study assists to identify the essential characteristics of satisfaction as well as identifying those factors of service quality that lead to an increase in patient's satisfaction.

The study process will be carried out in order to find an answer to the following research questions:

Research Question 1: Do private hospitals in Erbil differ from public hospitals in terms of service quality and its impact on patients' satisfaction?

Research Question 2: What is the impact of the quality management system in hospitals on patients' satisfaction?

Research Question 3: What are the main dimensions of service quality that lead to an increased patients' satisfaction?

Research Hypotheses

The researcher has developed the following research hypotheses to analyze the impact of the quality management on service quality and patients' satisfaction among public and private providers of healthcare in the Kurdistan region of Iraq:

H1: Hospitals that have developed a system of quality management experience higher patients' satisfaction as compared to hospitals that do not have such system.

H2: The private hospitals have more complex systems of quality management than the public ones.

H3: The introduction of the system of the quality management results in higher quality of services offered by hospitals.

II. HEALTHCARE IN KURDISTAN

The healthcare efficiency has therefore improved since the black hole of 1980s, also in terms of medical education: in 1993 two new medical schools in Duhok and Sulaimany have been opened (Gavin et al. 2017). After 2003 and the democratization of Iraq, the rapid socio-economic development of Kurdistan was accompanied by also intense development of the healthcare facilities. However, most of them were private, as the funds allocated health infrastructure reconstruction by American government went to the central government in Baghdad, and the Kurdistan benefitted little from these resources. On the contrary, the cooperation between regional ministries of health of the Kurdistan with the central ministry of health is very problematic, as the latter is constantly accused of withholding or delaying funds which should go to the region. As the consequence, those sparse public hospitals which were rebuilt of reconstructed are constantly overcrowded and lack enough medical staff (Li & He, 2021). Obviously, also the quality of medical services started to deteriorate, as the region additionally accepted thousands of refugees from neighboring countries, mostly from Syria (Koopmans et al. 2018). As the public sector was unable to fill the growing demand for good quality healthcare services, the private actors took initiative. These led to the establishment of private hospitals funded by

local physicians or investors, most of them funded in the capital of Kurdistan - Erbil.

Theoretical models of healthcare system: between public system and free market

There are at least three basic models of financing healthcare: tax-funded, social insurance-funded, and private-insurance-funded. The first one (tax-funded), also known as the Beveridge model (Papoulias, 2018), is mostly dominated by the public providers and is present in countries such as the UK, Sweden or Spain. The second one (social insurance-founded) is traditionally described as Bismarck model, at which usually a mix of private and public providers exists. This model is established in a number of countries, including France, Germany and Japan. The third one is based on private insurance, and the private providers dominate. The most typical example of this model is the US (Fei et al. 2020). This section reviews those three models on selected case studies. In this regard, the examples of Saudi Arabia who recently has established a Compulsory Employment-based Health Insurance system (Kilbourne et al. 2018) and Latvia who started with Social Health Insurance (SHI) in 1990s and switched recently to National Health Service (NHS) financed from general taxation (Anwar & Shukur, 2015) can be inspiring for Iraq and Kurdistan case in particular. All through the world policymakers are looking for approaches to enhance the effectiveness and monetary manageability of social insurance frameworks. Conspicuous among the proposed techniques is the acquaintance of more grounded showcase powers with the wellbeing area. However, approach understanding and observational study in the industrialized nations have entrenched that there are imperative market disappointments in healthcare services financing and arrangement, including unfavorable hazard choice, moral peril, and supply-side market control. In light of these strong market disappointments, governments are often called upon to intercede. In the territory of financing, for instance, encounter has demonstrated that if a human services framework is to accomplish widespread scope, government must help compose social hazard pooling (Yucesan et al. 2020). Government mediation, in any case, is a long way from a panacea. Frameworks that depend on government offices for human services arrangement, for instance, are regularly tormented with wasteful aspects from bureaucratic and monopolistic open administration. In light of both market and government disappointments, there has been a pattern towards "controlled rivalry" that endeavors to bridle focused powers for effectiveness and advancement while depending upon government-indicated tenets of the diversion to uphold social solidarity and right market disappointments. Changes in this soul incorporate hierarchical changes, for example, healing center self-sufficiency, corporatization, and detachment of the parts of buyer and supplier, as attempted (Singh et al. 2020).

Systems theory-based approach to hospital quality improvement

Numerous different parts of the economy have used efficient, confirm based building ways to deal with accomplish striking outcomes in quality, effectiveness, wellbeing, and different parts of activities. These techniques are differing, including procedures drawn from frameworks designing; mechanical building, human components designing, and activities look into (Hoover et al. 2017). The improvement of Systems Theory is to a great extent licensed to Austrian scholar Karl Ludwig von Bertalanffy. Starting in the 1920s, von Bertalanffy addressed on the impediments of the Newtonian ideas of shut frameworks and straight circumstances and end results. In his fundamental work in 1969, von Bertalanffy portrayed what has since turned out to be known as General Systems Theory, the idea that frameworks can't be decreased to a progression of parts working in separation, yet that, keeping in mind the end goal to comprehend a framework all in all, one must comprehend the interrelations between its parts (Santana et al. 2018). They use numerous kinds of apparatuses, including measurable process controls, inventory network administration, ease of use assessment, and demonstrating and recreation. By utilizing frameworks approaches, enterprises have possessed the capacity to facilitate tasks over numerous destinations, arrange the conveyance and administration of provisions outline usable and helpful advances, and give steady and dependable procedures. Maybe the most unmistakable and transformative use of frameworks designing for enhanced execution is found in aeronautics. Flight has influenced significant walks in enhancing wellbeing with a framework to approach. Its first walks in security came about because of enhancing the mechanical parts of the planes and guaranteeing that all innovations were upheld by redundancies. Be that as it may, even with these mechanical upgrades, flight mishaps still happened (Anwar, 2017). To dispense with these lingering security issues, the industry needed to address human components. This implied fabricating frameworks that remedied or alleviated the inescapable human mistake. The devices for achieving this included agenda to advance unwavering quality and give shared mental models, group asset administration to energize correspondences and bolster a group approach, and general human elements designing apparatuses to enhance the convenience for cockpit controls and data shows. Under this approach, aircraft wellbeing insights have enhanced drastically (Usman, 2017).

The challenge of quality in services

Most emerging developing countries remain to struggle with health care quality improvements, especially within the frame of limited public resources and growing national population (Anwar, 2016). Some common challenges, regardless of approach, include: extending life expectancy, improving measurement; ensuring good quality of life, gaining the attention of key decision makers; and improving the quality of the patients' and health care information. Although there are exceptions, most hospitals are finding it difficult to provide decision makers with good quality, credible and relevant information in a timely manner, let alone incentives to use this information in budgetary decision making. This section examines these challenges in more detail (Boamah et al. 2017). As a general public, we are evolving quickly, and this is clear in the connection between mind suppliers and the resident. Patients are progressively getting to be partners in their own care ventures; they request straightforwardness in access and data about their care and significantly, about the nature of administration gave. Nationals are currently requesting access on their terms. They need to plan arrangements when and where it suits them, not the supplier. They need the most recent medications or clinical preliminaries; and obviously, a conclusion to careful holding up records. Or on the other hand they need to be given the alternative to 'go private' without causing an individual cost. The Internet is changing resident conduct. This implies the way governments collaborate with their nationals needs to change as well. Districts are giving more administrations to the national utilizing innovation (Abdullah et al. 2017). We will see healthcare services suppliers do the same — receive mechanical answers for streamline procedures, for example, setting up virtual meetings with specialists or looking into lab comes about on the web. Human services are the remainder of the significant supply driven businesses. It won't be so for long. It will be the resident that requests the progress to an industry that answers their requirements, fears and goals (Salyers et al. 2017).

Theoretical models of patient satisfaction

In the marketing and business studies literature there are numerous models of patients' satisfaction. The latter models have included the antecedents and consequences of satisfaction within the context of utility (Anwar & Balcioglu, 2016), have combined patient satisfaction with the patient retention (Hennig-Thurau & Klee, 1997) or proposed hierarchical approach, linking service quality perceptions to 3 dimensions: outcome, interaction, and environmental quality (Hameed & Anwar, 2018). From this literature review of theoretical approaches one can identify key factors that affect patient satisfaction: "friendly employees, courteous employees, knowledgeable employees, helpful employees, accuracy of billing, billing timeliness, competitive pricing, service quality, good value, billing clarity and quick service" (Park, 2019). Thus, introduction of service quality policies by the service provider becomes one of the crucial determinants of its patient satisfaction (Anwar & Ghafoor, 2017).

The specific features of healthcare services: the perspective of a patient

Parasuraman et al. (1985) and Bitner (1992) explain that one of the greatest problems of intangibility is that it is difficult to assess its quality both during and after the service has been experienced. As a result, patients will look for quality of service to reduce uncertainty. Patients will use a combination of criteria, both objective and subjective, to judge their level of satisfaction, although it is often based on impressions, memories and expectations. They will draw inferences about quality from the hospitals, people, equipment, communication material, symbols and price that they see. Therefore, Nekhlyudov et al. (2019), suggested that the service provider's task is to manage the evidence in order to tangible the intangible. Nabeeh et al. (2020), state that service companies can try to demonstrate their service quality through both physical evidence and presentations. Said et al. (2018), propose a set of concepts called patient experience engineering in that companies must first develop a clear picture of what they want the patient's perception of an experience to be and then to design a consistent set of performance and context clues to support that experience (Said et al. 2018).

Measurement of patients' satisfaction in healthcare

Hospitals in developing and emerging economies continue face challenges with issues of quality measurement, especially referring to outcomes (Sfantou et al. 2017). Even with outputs it can be difficult to find accurate measures for specific activities. In such context, where the institutional and infrastructural framework is poorly developed, hospitals carry out a wide variety of functions that go far beyond the traditional roles of healthcare service providers. In the case of Par Hospital and Zhen International Hospital located in Erbil (Kurdistan), these activities include, building roads and providing travel facilities for foreigner to get treatment. Performance measures are more easily applied to certain types of functional and programme area than others. Problems especially arise with regard to intangible activities such as health advice or consultations (Anwar & Abd Zebari, 2015).

The functional areas with the most developed performance measures are health education and public health (Kruk et

al. 2017). Output and outcome measures each present a different set of challenges. Systems which only concentrate on outputs can result in goal displacement. Outcomes are technically more difficult to measure; they are complex and involve the interaction of many factors, planned and unplanned. It can also be problematic to relate what an agency or programme actually contributes towards achieving specific outcomes. There are also problems with time-lag issues, and in some cases the results are beyond the control of hospitals. Outcomes, however, have a strong significance for the health care workers. Resistance from health care workers can result in changing organizational behaviour and culture (Maqsood et al. 2017).

The literature on patient satisfaction offers a set of measures of consumer satisfaction (Hussain, Al Nasser & Hussain, 2015). Among them, one of the most popular indexes is the American Patient Satisfaction Index (ACSI). It combines three dimensions of satisfaction: "overall satisfaction, satisfaction compared to expectations, and satisfaction compared to an 'ideal' organization" (Gavin et al. 2017). Therefore, the ASCI model allows for investigation between cause and effect, relating drivers of satisfaction (including the patient expectation, perceived quality and value, but also other inputs such as quality management systems) with satisfaction (ASCI index) and the outcomes of satisfaction (such as patient loyalty or complaints). Yet, the biggest advantage of ASCI model is its universality, as the index was applied in empirical investigations on multiple surroundings, allowing for comparisons between different economic sectors, and – most important in the case of this study– between private and public actors (2021).

Quality management of healthcare services in hospitals

The health care is one of the important concepts in the service sector. World Health Care Organization (WHO), defines health care services as ''a permanent system which is organized nationwide to realise organizational objectives according to requirements and demands of the society by benefiting from different type of health care staff in certain health care establishments and thus to ensure health care of people and society by all kinds of protective and curative activities''. According to Fernandes and associates, hospital is an organization conforming to the conditions of the society and provides health care problems to all individuals of the society (Koopmans et al. 2018). Today private hospitals that compete with each other in Kurdistan region and the world have been turned into profit making organizations (Anwar & Surarchith, 2015). They are trying to apply the management structure of commercial of establishments to hospital environments while doing this. As result of these developments, the hospitals' outcome has been a significant success criterion both in private and public hospitals (Papoulias, 2018).

Quality management systems in healthcare

The literature on quality management suggests that the introduction and adaptation of QM systems in healthcare could bring positive outcomes but has to include the specific features of this sector. For instance, the serious problem in quality assurance in healthcare is the heterogeneity of actors that are included in the process of providing the service. In this regard, focusing only on physician performance yields biased results, as the contribution of non-physicians and organizational processes is also substantial (Fei et al. 2020).It can be seen that today a lot of researchers are discussing the topic of total satisfaction also total quality. Proposers of above mentioned tend to accentuate the significance of corresponding to specifications, satisfying requirements, providing consumers with the desirable quality of services (Kilbourne et al. 2018). Nowadays, patients' satisfaction considers an essential factor in health care. If a patient is dissatisfied, in case of illness he or she might choose another hospital. All the things which the company does in order to increase service quality can be counted as a zero if the patient left the hospital without being satisfied. Nowadays like never before, fulfilling consumers' requests remains the greatest challenge (Anwar & Shukur, 2015).

III. METHODOLOGY

Design of the study

A quantitative method used in order to analyze the current study. Quantitative studyis the numerical manipulation and illustration of explanations for the aim of clarifying and describing the phenomena that those explanations reflect. Furthermore, according to Cohen, (1980:68), it is defined as social study that uses empirical and experimental techniques. Experimental assessments are defined as a method that pursues to define the extent to which a particular policy or program experimentally obtains or does not obtain a specific norm or standards. Additionally, (Creswell,1994) has provided a very brief description of quantitative study as a kind of investigation that is `clarifying phenomena by gathering numerical data that are analyzed utilizing statistically according to the techniques. It is clear that the first section is clarifying phenomena is a key component of all academic research. A questionnaire used to analyze the current study. According to Kumar (2005) this study can be described as a cross-sectional study, based on the number of possible contacts out of the chosen study population. Babbie further defines that this type of study is "designed to study some

phenomenon by taking a cross section of it at one time" (Babbie, 1989).

Sampling size

According to Kumar (2005) sampling is "the process of selecting a few (a sample) from a bigger group (the sampling population) to become the basis for estimating or predicting the prevalence of an unknown piece of information. Sampling elements therefore have to be representative for the main population. A sample design is a plan for attaining certain sample from a provided population. Sample design refers to the procedure or method the researcher is willing to accept in choosing items for the sample. Sample was selected using a procedure of random sampling. The mentioned random sampling was carried out in locations in Erbil, Sulayimaniah and Duhok. A total of 1400 questionnaires were distributed in Erbil, Sulayimaniah and Duhok, however 993 questionnaires were received and being completed properly. The data were collected through in hard copies; the questionnaire consisted of five sections, first section consists of demographic questions of participants such as age, gender, years of experiences, and marital status, the second section consists of 17 questions to measure first research hypothesis which stated that ''Hospitals that have developed a system of quality management experience higher patients' satisfaction as compared to hospitals that do not have such system''. The second section consists of 16 questions to measure second research hypothesis which stated that '' The private hospitals have more complex systems of quality management than the public ones''. the third second consists of 15 questions to measure third research hypothesis which stated that '' The introduction of the system of the quality management results in higher quality of services offered by hospitals'' and five section consists of 16 questions of patients' satisfaction.

IV. DATA ANALYSIS

The purpose of this study is to investigate quality system of private hospitals in Kurdistan region of Iraq. As it mentioned previously total of 993 respondents were involved in completing the survey. The current study deals with private hospital's quality criteria. The participants were asked to rate how important they perceived each item on five point ordered scales. All data were having been analyzed by using SPSS version 23. First section of data analysis is demographic data analysis consists of respondents' age which divided into eight groups starting with group 20-25 years old, 26-30 years old, 31-35 years old, 36-40 years old, 41-45 years old, 46-50 years old, 51-55 years old and 56 years old and above, in regard of the respondents' marital status which divided into five sections; whether the respondent is married, separated, widowed, single or divorced and final section in terms of respondents' level of education which divided into five sections as well; primary education, high school education, college diploma, university degree or graduate school degree. The second section of data analysis consists of six parts; first part is measuring '' Hospitals that have developed a system of quality management experience higher patients' satisfaction as compared to hospitals that do not have such system'', the researcher started with factor deduction analysis to eliminate components factor then reliability test in order to find out the reliability of items used in this study, the correlation analysis to determine the association between quality as independent factor and patient satisfaction as dependent factor and finally, regression analysis to investigate the result of research hypothesis to see whether the null hypothesis has been supported or not. Second part is to examine the '' The private hospitals have more complex systems of quality management than the public ones'', the researcher started with factor deduction analysis to eliminate components factor then reliability test in order to find out the reliability of items used in this study, the correlation analysis to determine the association between complex quality system as independent factor and patient satisfaction as dependent factor and finally, regression analysis to investigate the result of research hypothesis to see whether the null hypothesis has been supported or not. Third part deals with '' The introduction of the system of the quality management results in higher quality of services offered by hospitals'', the researcher started with factor deduction analysis to eliminate components factor then reliability test in order to find out the reliability of items used in this study, correlation analysis to determine the association between introduction of the system of the quality management as independent factor and patient satisfaction as dependent factor and finally, regression analysis to investigate the result of research hypothesis to see whether the null hypothesis has been supported or not.

Demographic Analysis

Table 1-Demographic analysis

Items		Frequency	Percent
Gender	Male	754	75.9
	Female	239	24.1
Age	20-25	41	4.1
	26-30	179	18.0
	31-35	361	36.4
	36-40	189	19.0
	41-45	105	10.6
	46-50	69	6.9
	51-55	33	3.3
	56 and above	16	1.6
Marital status	Married	652	65.7
	Separated	4	.4
	Widowed	57	5.7
	Single	262	26.4
	Divorced	18	1.8
level of education	Other	50	5.0
	High School	8	.8
	College	360	36.3
	University	431	43.4
	Graduated School	144	14.5

As seen in table (1) demographic analysis for participants participated in this study. According to the frequency analysis by SPSS the researcher was able to analyze participants' background information. In terms of participants' gender; it was found out that 754 males from total of 993 participants participated in this study and 239 females from total of 993 participants participated in this study. In terms of participants age; it was found that 41 from total of 993 participants fall in a group of 20-25 years old, 179 from total of 993 participants fall in a group of 26-30 years old, 361 from total of 993 participants fall in a group of 31-35 years old, 189 from total of 993 participants fall in a group of 36-40 years old, 105 from total of 993 participants fall in a group of 41-45 years old, 69 from total of 993 participants fall in a group of 46-50 years old, 33 from total of 993 participants fall in a group of 51-55 years old and finally 16 from total of 993 participants fall in a group of 56 years old and above. In terms of participants' marital status; it was found that 652 married participants participated in this study, only four separated participants participated in this study, 57 widowed participants participated in this study, 262 single participants participated in this study and 18 divorced participants participated in this study. In terms of participants' level of education; it was found that only eight participants had obtained high school, 360 participants from total of 993 participants had obtained college degree, 431 participants from total of 993 participants had obtained university degree, 144 participants from total of 993 participants had obtained graduated school degree and 50 participants from total of 993 participants had obtained other degrees.

Testing Research Hypotheses

First Research Hypothesis

H1: Hospitals that have developed a system of quality management experience higher patients' satisfaction as compared to hospitals that do not have such system.

Table 2-Correlation analysis between developed a system of quality management and patient satisfaction

Correlations			
Variables	Pearson Correlation	patient satisfaction	developed a system of quality management
patient satisfaction	Pearson Correlation	1	.875**
	Sig. (2-tailed)		.000
	N	993	993
developed a system of quality management	Pearson Correlation	.875**	1
	Sig. (2-tailed)	.000	
	N	993	993
**. Correlation is significant at the 0.01 level (2-tailed).			

Correlation analysis presents the values of the identified correlation tests; Table (2) shows the correlations between the scales using person correlation. Correlation analysis is determined the strength of relationship between variables. The researcher correlated developed a system of quality management as independent variable with patient satisfaction as dependent variable. According to correlation test, the researcher found out that developed a system of quality management has significant correlation ($r=.875^{**}$, $p<0.01$) with patient satisfaction. Concerning the strength of the linear relationship is strong between developed a system of quality management and patient satisfaction.

Model Summary of Developed A System of Quality Management

Table 3-Model Summary of developed a system of quality management

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.875[a]	.765	.765	.21273
a. Predictors: (Constant), developed a system of quality management				

Regression analysis is analyzing relationships among factors. Y=f(x1,x2…Xc). Regression analysis is to estimate the how Y will influence and change X and predict. In this section the developed a system of quality management as an independent variable and patient satisfaction as a dependent variable. The patient satisfaction's overall difference could be measured by its variance. The differences are measured as the sum of the square between participant's forecasted patient satisfaction values and the total mean divided by the number of participants. After division it will clarify variance by the total variance of patient satisfaction, the researcher found out the amount or the number of total difference or variance that is accounted based on regression calculation. The number should vary between 0 -1 and is symbolized by R Square. Table (3) shows the value of R square = .765 this indicates that 77% of total variance has been explained.

Table 4-ANOVA of developed a system of quality management

ANOVA						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	145.777	1	145.777	3221.304	.000[b]
	Residual	44.756	989	.045		
	Total	190.533	990			
a. Dependent Variable: patient satisfaction						

b. Predictors: (Constant), cost leadership

Table (4) explains F value for developed a system of quality management as independent variable =3221.304, since (3221.304>1) this indicates there is a significant relation between developed a system of quality management and patient satisfaction.

Table 5-Coefficients Analysis of developed a system of quality management

Coefficients						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.397	.062		6.407	.000
	cost leadership	.898	.016	.875	56.757	.000
a. Dependent Variable: patient satisfaction						

Table (5) explains the result of first hypotheses, developed a system of quality management has significantly predicted patient satisfaction (Beta is weight 0.875, p<.001) this indicates that developed a system of quality management will have a direct positive association with patient satisfaction based on this result the first hypotheses supported.

Second Research Hypothesis

H2: The private hospitals have more complex systems of quality management than the public ones.

Table 6-Correlations of complex systems of quality management

Correlations			
Variables	Pearson Correlation	patient satisfaction	complex systems of quality management
patient satisfaction	Pearson Correlation	1	.571**
	Sig. (2-tailed)		.000
	N	993	993
complex systems of quality management	Pearson Correlation	.571**	1
	Sig. (2-tailed)	.000	
	N	993	993
**. Correlation is significant at the 0.01 level (2-tailed).			

Correlation analysis presents the values of the identified correlation tests; Table (6) shows the correlations between the scales using person correlation. Correlation analysis is determined the strength of relationship between variables. The researcher correlated complex systems of quality management as independent variable with patient satisfaction as dependent variable. According to correlation test, the researcher found out that complex systems of quality management have significant correlation ($r=.571^{**,}$ $p<0.01$) with patient satisfaction. Concerning the strength of the linear relationship is moderately strong between complex systems of quality management and patient satisfaction.

Table 7-Model Summary of complex systems of quality management

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.571[a]	.326	.326	.35991
a. Predictors: (Constant), complex systems of quality management				

The patient satisfaction's overall difference could be measured by its variance. The differences are measured as the sum of the square between participant's forecasted patient satisfaction values and the total mean divided by the number of participants. After division it will clarify variance by the total variance of patient satisfaction, the researcher found out the amount or the number of total difference or variance that is accounted based on regression calculation. The number should vary between 0 -1 and is symbolized by R Square. Table (7) shows the value of R square = .326 this indicates that 33% of total variance has been explained.

Table 8-ANOVA of complex systems of quality management

ANOVA						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	62.182	1	62.182	480.047	.000[b]
	Residual	128.368	991	.130		
	Total	190.550	992			
a. Dependent Variable: patient satisfaction						
b. Predictors: (Constant), complex systems of quality management						

Table (8) explains F value for complex systems of quality managementas independent variable =480.047, since (480.047>1) this indicates there is a significant relation between differentiation strategy and patient satisfaction.

Table 9-Coefficient of complex systems of quality management

Coefficients						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.947	.089		21.779	.000
	complex systems of quality management	.510	.023	.571	21.910	.000
a. Dependent Variable: patient satisfaction						

Table (9) explains the result of second Research Hypothesis, complex systems of quality managementhas significantly predicted patient satisfaction (Beta is weight 0.571, p<.001) this indicates that complex systems of quality managementwill have a positive association with patient satisfaction based on this result the second Research Hypothesis supported.

Third Research Hypothesis

H3: The introduction of the system of the quality management results in higher quality of services offered by hospitals.

Table 10-Correlations between the introduction of the system of the quality management's and Patient satisfaction

Correlations			
Variables	Pearson Correlation	patient satisfaction	focus
patient satisfaction	Pearson Correlation	1	.529**
	Sig. (2-tailed)		.000
	N	993	993
the introduction of the system of the quality management's	Pearson Correlation	.529**	1
	Sig. (2-tailed)	.000	
	N	993	993

**. Correlation is significant at the 0.01 level (2-tailed).

Correlation analysis presents the values of the identified correlation tests; Table (10) shows the correlations between the scales using person correlation. The researcher correlated the introduction of the system of the quality management as independent variable with patient satisfaction as dependent variable. According to correlation test, the researcher found out that the introduction of the system of the quality management has significant correlation ($r=.529^{**}$, $p<0.01$) with patient satisfaction. Concerning the strength of the linear relationship is moderately strong between the introduction of the system of the quality management and patient satisfaction.

Table 11-Model Summary of the introduction of the system of the quality management

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.529[a]	.280	.279	.37205
a. Predictors: (Constant), the introduction of the system of the quality managementt				

The differences are measured as the sum of the square between participant's forecasted patient satisfaction values and the total mean divided by the number of participants. After division it will clarify variance by the total variance of patient satisfaction, the researcher found out the amount or the number of total difference or variance that is accounted based on regression calculation. The number should vary between 0 -1 and is symbolized by R Square. Table (11) shows the value of R square = .280 this indicates that 28% of total variance has been explained.

Table 12-ANOVA of Focus Strategy

ANOVA						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	53.372	1	53.372	385.570	.000[b]
	Residual	137.178	991	.138		
	Total	190.550	992			
a. Dependent Variable: patient satisfaction						
b. Predictors: (Constant), the introduction of the system of the quality management						

Table (12) explains F value for the introduction of the system of the quality management as independent variable =385.570, since (385.570>1) this indicates there is a significant relation between the introduction of the system of the quality management and patient satisfaction.

Table 13-Coefficients of the introduction of the system of the quality management

Coefficients						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.261	.084		26.965	.000
	focus	.440	.022	.529	19.636	.000
a. Dependent Variable: patient satisfaction						

Table (13) explains the result of third Research Hypothesis, focus strategy has significantly predicted patient satisfaction (Beta is weight 0.529, $p<.001$) this indicates that the introduction of the system of the quality

management will have a positive association with patient satisfaction based on this result the third Research Hypothesis supported.

V. CONCLUSION

The study aims to examine the determinants of patients' satisfaction in both public and private hospitals in Kurdistan. The rapid development of healthcare markets, the increased competition between both public and private providers and the growing heterogeneity of patients' needs have shown policy makers that it is extremely difficult to satisfy the expectations of all of the stakeholders This research focuses on the development of the healthcare system in Kurdistan region in northern Iraq, with particular attention given to the linkage between the quality system introduction by the healthcare providers and patient's satisfaction. The researcher developed three research hypotheses to measure the impact of hospital quality system in private and public sector on patients' satisfaction in Kurdistan region of Iraq. A quantitative method used in order to analyze the current study. The random sampling was carried out in locations in Erbil, Sulayimaniah and Duhok. A total of 1400 questionnaires were distributed in Erbil, Sulayimaniah and Duhok, however 993 questionnaires were received and being completed properly. The findings revealed that the result of first hypothesis, developed a system of quality management has significantly predicted patient satisfaction (Beta is weight 0.875, p<.001) this indicates that developed a system of quality management will have a direct positive association with patient satisfaction based on this result the first hypotheses supported. As for second research hypothesis, complex systems of quality managementhas significantly predicted patient satisfaction (Beta is weight 0.571, p<.001) this indicates that complex systems of quality managementwill have a positive association with patient satisfaction based on this results the second research hypotheses supported, and finally as for third research hypothesis, focus strategy has significantly predicted patient satisfaction (Beta is weight 0.529, p<.001) this indicates that the introduction of the system of the quality management will have a positive association with patient satisfaction based on this results the third research hypotheses supported.

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