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Measuring Quality of Service from Consumers' Perspectives: A Case of Healthcare Insurance in Saudi Arabia

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Abstract

Healthcare system in Saudi Arabia is transforming from public to an independent private sector mainly through healthcare insurance. Success of the healthcare insurance depends upon the quality of service that is delivered according to consumers' expectations. Globally there has been a significant level of research measuring services quality predominantly applying gap analysis model. In this regard our research is pioneering effort applying gap analysis model with reference to measuring Saudi healthcare services' quality. SERVQUAL model has been applied to determine gaps in service quality based on five dimensions of care. Primary data collected from 400 respondents was analyzed using SPSS software to conduct factor analysis. Data reliability was established through KMO's test. Factors were extracted to determine weighted scores to carry out gap analysis that showed generally consumers are satisfied with all dimensions of the service except reliability. Hence we indicate certain areas where service managers need to concentrate upon and set priorities to make service quality highly satisfactory and continuously improving. Finally we argue that research to be extended countrywide so that the quality of healthcare service through insurance is determined on regional basis to ensure there are no geographical, ethnic or demographic disparities in the service provision.

Keywords: Service quality; Healthcare insurance; Gap analysis; SERVQUAL

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Introduction

Healthcare system in Saudi Arabia is well established both in public and private sectors comprising two tiers i.e. primary and secondary care. Primary care has a network of health centers and clinics that provide preventive, prenatal, emergency, and basic services including mobile clinics for remote rural areas. The secondary care comprises hospitals and specialized treatment facilities located in urban areas [1]. In order to cater for healthcare needs in the Kingdom there are three key players i.e. Ministry of Health (MOH), other governmental organizations and the private sector organizations [2]. This system caters for a population of 30 million including 9.7 million expatriates [3]. Saudi Arabia has a largest and fastest growing population in the Gulf Cooperation Countries (GCC) which according to an overview by Colliers International Health (CIH) will reach 38.6 million, including 14.6 million non-Saudis, by 2020 [4].

Saudi Arabian government allocates huge annual budget for healthcare with substantial annual growth rate. Between 2006 and 2008 Saudi Arabia allocated approximately Saudi Arabian Riyals (SAR) 25.3 billion per annum with a cumulative amount of SAR 94 billion investment in the healthcare sector [4]. **Table 1** provides statistics of extraordinary increase in health budget in 2009 which continued increasing steadily from 2009 to 2013.

Figures in **Table 1** are exclusive of cumulative allocation of SAR 368 billion between 2009 through 2013 - SAR 73.7 billion per

Table 1 Annual allocation for health budget (SAR in billions).

	2008	2009	2010	2011	2012	2013
Annual health budget	30	52	61.2	68.7	86.5	100.00
% of the total KSA budget	6.3%	11%	12.2%	11.8%	11%	11%

Source: CIH, 2013

annum compared to SAR 23.5 billion between 2005 through 2008 [4]. Saudi Government continues to invest in healthcare sector. Statistics show that it spending as % of Gross Domestic Product (GDP) was 3.7% in 2013, making it the second highest in the Gulf region [4]. However comparing to the western countries, Saudi's spending as % of GDP stands substantially lower than the United States of America (USA) which is 17.9%, Germany 11.1% and United Kingdom (UK) 9.3% [4]. Despite high % of GDP spending in Gulf region Saudi Arabia has lowest number of beds, nurses and doctors per population within the GCC that needs further investment [4]. This has opened up doors for healthcare insurance following the footsteps of the GCC. Consequently demand for healthcare has shifted towards private sector [4] and we believe its success depends upon the quality of service.

Development of healthcare insurance in saudi arabia

Organized insurance industry in Saudi Arabia is almost a decade old. In 2004 Saudi Arabian Monetary Agency (SAMA) was assigned the responsibility to develop and organize insurance industry according to international standards. SAMA accordingly developed Cooperative Insurance Companies Control Law, Article one which made healthcare insurance mandatory through Cooperative Health Insurance Act dated 12 August 1999 [5]. However actual work on the Act started from 15 July 2006 and implemented in stages. In the first stage healthcare insurance scheme became mandatory for expatriate workforce employed by organizations having over 500 employees. This scheme has now been extended nationwide to all Saudi and non-Saudi employees working in the private sector and there are plans to expand it further by taking all citizens into the fold of healthcare insurance. History of insurance industry in Saudi Arabia is well documented in [6], our major focus in this research is to develop methods that measure service quality and provide guidelines for service managers to make informed decision and set priorities for continuous development of the care system. In this regard our first step is to understand the healthcare insurance in Saudi Arabia and its potential as presented in **Table 2**.

Table 2 highlights the scale at which insurance industry in general and healthcare insurance in particular have increased tremendously over the past five years. Scope for healthcare is substantially wide as Gross Written Premiums (GWP) for healthcare insurance increased by 82% in 2014 over the base year of 2010. Compared to general insurance industry, share of healthcare insurance stood 50% of the total GWP from 2010 through 2014. According to the Council of Cooperative Health Insurance (CCHI) there are currently 27 health insurance companies (both national and multi-national) operating in Saudi Arabia [7]. This suggests a great potential for healthcare insurance industry in the Kingdom. This is why measuring service quality is imperative to assist managers and regulators to ensure service is according to the consumers' expectations.

By looking at the history of healthcare insurance we can say that healthcare insurance in Saudi Arabia has firmly taken its roots and now the system has to be nurtured to reach its potential. In this respect our aim is to identify gaps in service delivery by highlighting specific areas of weaknesses and strengths so service managers can prioritize factors that are crucial in healthcare service delivery.

Literature Survey

Service quality can simply be defined as the extent to which service meets consumers' expectations [8]. If expectations exceed the performance then perceived quality is less than satisfactory hence causing consumers' dissatisfaction [8-10]. Accordingly quality has been defined as the degree of fit between consumers' expectations and consumers' perception of the service or product. Another view of quality is to enhance competitiveness, effectiveness and flexibility within the entire organization [11].

With reference to healthcare insurance this concept of quality becomes a pre-requisite to ensure consumers' satisfaction both in terms of design of the service and conformity with the service delivery. Concentrating upon quality in terms of medical services a popular view is that "quality is a property that medical service can have in varying degrees" [12]. How this property is assessed is generally a matter of matching expectation with perception [9]. Another popular view about measuring healthcare insurance quality is identifying quantifiable factors or attributes to be measured such as behavior of medical staff [13]. We consider this is one of the several important factors while assessing or measuring the quality of healthcare service. Hence measuring the quality of healthcare insurance becomes vital while Saudi healthcare system is transforming from public to private sector.

In essence service quality measurement requires quantifiable factors or attributes and literature in this respect provides a list of general elements necessary for the quality of any product or service [14]. These elements include availability, guarantee, communication, expertise standard, behavior, flaw, duration, engagement, humanity, effects, reliability, responsibility and safety. Difficulty in service quality measurement stems from its nature of heterogeneity as oppose to the product which is homogeneous in nature and follows a pre-determined standard and design. Quality assurance process is generally based on two approaches; a) product / service oriented and b) consumer oriented [11]. Our focus here is consumer oriented to find methods that determine consumer's satisfaction.

Table 2 GWP of total insurance.

SAR in Million	2010		2011		2012		2013		2.14	
	SAR	% Total	SAR	% Total	SAR	% Total	SAR	% Total	SAR	% Total
Protection and Savings	972	6%	905	5%	889	4%	845	3%	904	3%
Health	8,690	53%	9,708	52%	11,285	53%	12,895	51%	15,720	52%
General	6,725	41%	7,890	43%	9,000	43%	11,500	46%	13,857	45%
Total	16,387	100%	18,504	100%	21,174	100%	25,239	100%	30,482	100%

Source: Saudi Insurance Market Report (SAMA, 2014 p.6)

Another view from the literature emphasizes that quality has importance both for the deliverers and the recipients of the service and requires careful consideration in measuring quality [15]. The work presented in [15] provides robust analysis of quality measurement by comparing four methods i.e. SERVQUAL, Weighted SERVQUAL, SERVPERF and Weighted SERVPERF. Findings of this research suggest that SERVPERF method is superior to SERVQUAL. At the same time we acknowledge the concerns in the literature over the applicability of SERVQUAL across a wide variety of services [16-18]. Discussion on this criticism is beyond the scope of this study, we therefore refer to the work that presents findings from a follow-up study in which researchers refined SERVQUAL and replicated it in five different customer samples [19]. In this case researchers compared their findings with those of other researchers who had recently employed and evaluated SERVQUAL [19]. On the basis of insights from this comparative discussion the future directions for SERVQUAL research and applications was determined [19]. Accordingly the use of SERVQUAL became wide spread since the model developed in 1985 [9] and then further studies carried out in 1988 [20], 1991 [19], 1993 [21], 1994 [22] and (1990) [23] to establish its importance. Based on this we are convinced that SERVQUAL is appropriate for measuring quality of healthcare service and would be useful in case of Saudi Arabia.

Taking our discussion further we argue that there is consensus in the literature that quality management is basically to reduce gap between consumers' expectations and perception of the service. In the literature there are seven major gaps in service quality concepts [9,24,25]. Of these seven gaps, two gaps are in consumer's domain and 5 are in operation's domain. In another study we find five gaps, of which one falls in customer's domain and the rest fall in operation's domain [11]. In this study we follow the gap model provided in [10]. Their model provides four possible gaps, of which two gaps are in operation's domain and two gaps are in consumer's domain. We have slightly modifies this model and incorporate fifth gap in consumer's domain as shown in the following **(Figure 1)**.

Gap analysis model in **Figure 1** is self explanatory and it is worth mentioning that all four gaps lead to the fifth gap that is the difference between consumer's expectation of the service and the actual performance of the service. In this respect literature suggests that "the fifth gap is indeed the result of existence of gaps 1-4 such that the fifth gap decreases or eliminated with decreasing or eliminating each of the four gaps" [26]. Therefore

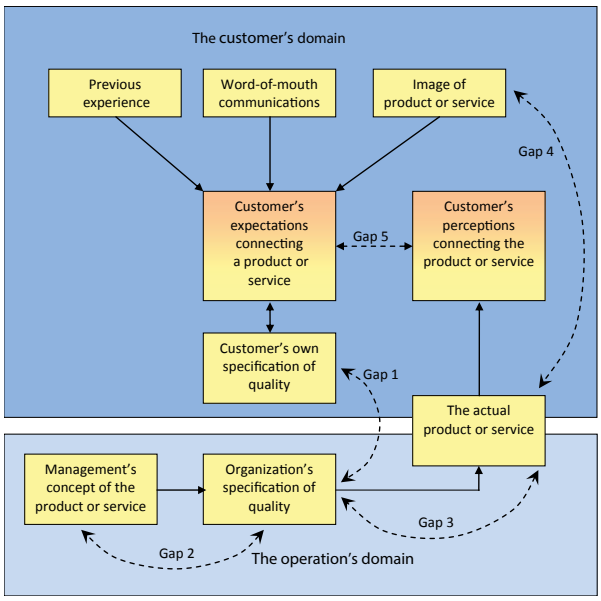

Figure 1 Gap Model.

it implies that the management of an organization can reduce the fifth gap by improving the quality of service or product. We have therefore concentrated upon the fifth gap in this study in order to determine gaps in five dimensions of the quality of healthcare service. In this respect we get further strength from another study which considers gap analysis model the most valuable contribution to services literature that helps identifying difference between consumers' expectations and perception and paves way for SERVQUAL [27].

SERVQUAL

SERVQUAL model has been widely used in measuring service quality, the most prominent are measuring quality in hotels industry [11,28], in public services [29], in psychometric and diagnostic criteria [30] and in life insurance [31]. Further evidence of appropriateness of SERVQUAL application across the services industries is from [32-35]. In all studies the common approach has been to identify differences between consumers' perception of quality and their expectation generally around five dimensions i.e. reliability, responsiveness, assurance, empathy, and tangibles. Within the five dimensions literature suggests around 22 statements to measure consumers' expectations and the perception using seven point likert scale [36]. We have slightly

modified the set of statement and reduced it into 20 statements for collecting primary data through questionnaires **(Appendix I and II)**.

Statement of the problem

Success of transforming Saudi healthcare insurance system from public to independent private sector depends upon the quality of service acceptable to the public at large. Healthcare insurance is not a new concept. In the US, according to Northern California Neurosurgery Medical Group, accident related insurance history dates back to 1861 [37] which started transforming into employer-sponsored health insurance from the first half of the 20th century [38]. The history of developments in healthcare insurance industry of US is spread over centuries in reaching the present state. Compared to that healthcare insurance in Saudi Arabia, starting with limited coverage to expatriate workers in 2005, was extended to cover all Saudis working for private sector by 2008. The Saudi government is now planning to extend service nationwide. In our opinion this is a huge shift in service provision and it would not be without problems specifically in terms of quality of service for consumers. In this respect the purpose of this research is to examine the strength of the service quality being offered by the present insurance system and find answer whether industry is in a position to maintain the quality in view of huge demand it is going to experience.

Research Objectives

Our objective in this respect is to use SERVQUAL model and identify gaps in the quality of healthcare insurance in Saudi Arabia. Our plan is to conduct factor analysis and provide solution to resolve quality issues faced by the consumers of healthcare insurance.

Hypothesis

In line with above objectives this study is designed to determine gaps between expectation and perception of the service. According to [39] a comparison between expectation and actual realization is imperative to make survey meaningful. In this respect we propose the following five hypotheses in line with each dimension of the service.

$H_1: \mu_1 \geq 0$. There is no negative gap between perceived and expected reliability of the service.

$H_2: \mu_2 \geq 0$. There is no negative gap between perceived and expected responsiveness of the service

$H_3: \mu_3 \geq 0$. There is no negative gap between perceived and expected assurance of the service.

$H_4: \mu_4 \geq 0$. There is no negative gap between perceived and expected empathy of the service.

$H_5: \mu_5 \geq 0$. There is no negative gap between perceived and expected tangibility of the service.

Research Methodology

We examined literature concerning SERVQUAL framework and the healthcare environment of Saudi Arabia. The main idea was to establish; a) the quantum of health insurance sector of the Kingdom, and b) the relevance of applying gap analysis in measuring the quality of healthcare insurance in Saudi Arabia. After establishing research problem and determining the requirements of SERVQUAL framework we developed a questionnaire to collect primary data on consumers' expectation and perception of the service across all the five dimensions. Data has been collected using reliable sources which ensured all respondents provide their responses.

The responses were taken on likert scale of 1 to 5 where 5 means highly agreed with the statement and 1 means highly disagreed with the statement [40] cited in [11]. In order to facilitate respondents the questionnaire was translated into Arabic. Data collected through questionnaire was compiled using SPSS software in order to interpret the quality and reliability of the data. We then carried out factor analysis and determined gaps in the service being provided and reached the conclusion related to our hypotheses.

Results

Demographic profile

Table 3 provides demographic profile of the respondents who by default are the users of the healthcare insurance in our study. The profile is based on six parameters as given in **Table 3**.

Table 3 presents fairly mixed population of Saudis (34.5%) and non-Saudis (65.5%) working in the Kingdom. On the gender parameter our sample comprises 26.3% female which is quite encouraging given the Islamic culture of Saudi Arabia. Sample also depicts that 86% respondents were married and 81% of the respondents have children who truly reflect healthcare need. On

Table 3 Sample Profile.

	Nationality (1)		Gender (2)		Marital Status (3)		Children (4)		Qualification (5)		Working (6)	
	Saudi	Non-Saudi	Male	Female	Married	Un-Married	With Children	Without-Children	Graduate+	Non-Degree	Executive	Non-Executive
Total	138	262	294	105	344	56	325	74	191	208	197	202
Percentage (%)	34.5	65.5	73.7	26.3	86	14	81.3	18.5	47.8	52	49.3	50.5

Table 4 KMO and Bartlett's Test.

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.957
Bartlett's Test of Sphericity	Approx. Chi-Square	1.035E4
	df	1035
	Sig.	.000

Table 5 Reliability test for perception.

Dimension	Cronbach' alpha for dimension	Cronbach' alpha if item deleted	Item
Reliability	0.753	0.751	P1
		0.672	P2
		0.685	P3
		0.720	P4
		0.710	P5
Responsiveness	0.743	0.721	P6
		0.656	P7
		0.691	P8
		0.672	P9
Assurance	0.803	0.716	P10
		0.723	P11
		0.768	P12
		0.788	P13
Empathy	0.722	0.599	P14
		0.472	P15
		0.557	P16
Tangibles	0.759	0.749	P17
		0.672	P18
		0.672	P19
		0.719	P20

qualification parameter 47.8% of the respondents are holding bachelor or higher degrees and likewise 49.3% of the respondents hold executive positions. In brief our sample is an excellent mix of ethnicity, gender, marital status, level of qualification and employment structure and we can say confidently that our sample is true representative of the users of healthcare insurance.

Reliability test

In order to ascertain reliability of the data we carried out KMO's test and its result is shown in **Table 4**.

The KMO's test varies between 0 and 1. Higher values suggest that the factor analysis is relevant for the study. The reliability scale for all variables of this research is 0.957 which is marvelous and close to that of 0.92 reported by [20]. According to [41] cited in [31] "the high shared variance and relatively low uniqueness in variance are indicated by the KMO's measure for sampling adequacy". The KMO's result in our case suggests that there is no error in 95.7% of the sample and in the remaining 4.3% there may be some sort of error [20]. Bartlett's test on the other hand confirms that there are correlations in the data set and that factor analysis is appropriate for this data. The value of Chi-Square (1.035E4 with significance level 0.000) means there is no uniqueness in the data and factors affecting the service quality are significantly different.

With reference to gap analysis between expectation and perception we further narrowed down our analysis and worked out Cronbach's alpha for each dimension of the perception and expectation to judge the appropriateness of factor analysis. **Table 5** therefore presents Cronbach's alpha for perception of the service and explained thereafter.

Table 5 presents reliability scale for all five dimensions and also the reliability scale for each dimension if each item in the dimension is deleted. This analysis as per [33] helps establishing whether deleted item is genuine or not. Accordingly if Cronbach's alpha increases if the item is deleted it means the item is not genuine. **Table 5** shows that Cronbach's alpha for each dimension decreases when any of its items is deleted. This establishes that all items are genuine and true measure of that dimension. In line with above analysis the following **Table 6** presents reliability analysis for consumers' expectation of the service.

We can see from **Table 6** that each dimension's Cronbach's alpha decreases when any of its items is deleted, except E13 where Cronbach's alpha increases substantially from 0.481 to 0.647 if E13 is deleted. This means E13 is not a genuine item and can therefore be eliminate from the factor analysis. From **Tables 5 and 6** we see all dimensions have shown reasonably high reliability coefficients meaning that these dimensions are true measure of service quality and suitable for factor analysis.

Factor analysis

Factor Analysis technique is generally used for data reduction where underlying factors explain the inter-relationship or correlation among observed variables [42]. Why we have used factor analysis in this research is best answered in [34] which describe that "SERVQUAL generally using likert scale is a methodology of ranking where statistical tools such as mean or SD (Standard Deviation) do not express any meaningful results". This critic on statistical tools is quite valid and strongly recommends the use of factor analysis that converts expectation and perception scores into newly weighted scores.

Substantial discussion is available in the literature on the forms of factor analysis to be applied according to research objectives [32,34,35,43]. We have followed [43] recommendations to apply Principal Component Analysis (PCA) with Varimax rotation as it has the potential of revealing the underlying structure of the latent variables through appropriate rotation method [32,44]. Factor loading for each dimension's expectation is given in **Tables 7**.

The KMO's test for each dimension is given in **Table 8**.

According to **Table 8** substantially high values of KMO's test justifies the relevance of using factor analysis. Likewise factors have been extracted for each dimension of perception and given in **Table 9**.

KMO's test for perception, as shown in **Table 10**, is substantially high and justifies the relevance of factor analysis for this study.

Factor loading of all items in **Tables 7 and 9** are greater than 0.5 meaning all items of the questionnaire are properly loaded. Eigen values of all components are higher than 1 proving the

Table 6 Reliability test for expectation.

Dimension	Cronbach's alpha for dimension	Cronbach's alpha if item deleted	Item
Reliability	0.782	0.696	E1
		0.752	E2
		0.722	E3
		0.767	E4
		0.755	E5
Responsiveness	0.695	0.640	E6
		0.650	E7
		0.606	E8
		0.625	E9
Assurance	0.481	0.381	E10
		0.388	E11
		0.368	E12
		0.647	E13
Empathy	0.644	0.512	E14
		0.634	E15
		0.490	E16
Tangibles	0.661	0.655	E17
		0.574	E18
		0.570	E19
		0.570	E20

significance of the factors extracted. Factor analysis further leads us towards investigation whether any negative gap exists between perception and expectation of the service delivered through healthcare insurance in Saudi Arabia.

Gap analysis

Gap analysis (Perception - Expectation) has been carried out based on weighting from the factor analysis to determine satisfaction level of the consumers for all five dimensions and presented in **Table 11**.

Table 11 shows that generally there is a significant level of satisfaction among consumers of healthcare insurance except in case of Reliability (G1) dimension where respondents have expressed their dissatisfaction quite moderately (-0.0335). Gaps on all other dimensions i.e. Responsiveness (G2), Assurance (G3), Empathy (G4), and Tangibles (G5) show a moderate level of satisfaction. We further explain gaps in each dimension with reference to the proposed hypotheses.

Statistical description of gaps in dimensions and explanation of results

Reliability (G_1)

Our analysis shows that regarding reliability dimension consumers have expressed their dissatisfaction with a mean score of G_1 = -0.0335 **(Table 11)**. SD is 0.63937 which suggests that gap is not significantly scattered away from the mean however this matter of dissatisfaction needs to be addressed. With reference to Reliability dimension skewness of 1.149 suggests that the tail is positively long along right indicating majority data is concentrated towards left.

Kurtosis score of 6.252 suggests gap is clustered around the mean. It is to remind that for a normal distribution higher score of Kurtosis means tall shape of the distribution and gap is normally spread around the mean. Having observed that negative gap exists in reliability dimension we therefore reject the hypothesis H_1: $\mu_1 \geq 0$ and accept the alternate hypothesis that consumers are dissatisfied with the service reliability.

Responsiveness (G_2)

It appears from the mean score of G_2 = 0.0362 that respondents are generally satisfied with the responsiveness level of service. The SD of 0.57729 indicates gap is closely spread around the mean. Positive skewness of 0.286 suggests the tail is slightly long towards right however the spread is very close to mean. Kurtosis of 2.14 indicates relatively flat shape of the distribution however the gap is spread around the mean with moderate level of satisfaction. Accordingly we accept the hypothesis H_2: $\mu_2 \geq 0$ that there is no negative gap in service responsiveness thus resulting consumers' satisfaction.

Assurance (G_3)

The mean value of G_3 = 0.204 which confirms that respondents are satisfied with the assurance level of service being provided. SD of 0.59513 indicates gap is closely spread around the mean. Likewise positive skewness of 0.619 suggests tail is long towards right and Kurtosis of 4.545 suggests that distribution is very close to that of normal distribution and gap is spread around the mean. We therefore accept the hypothesis H_3: $\mu_3 \geq 0$ and conclude that negative gap does not exist and consumers are satisfied with assurance dimension of the service.

Empathy (G_4)

The mean value of G_4 = 0.0250 is confirmation that consumers are satisfied with the empathy level of service. SD of 0.63275 indicates gap is closely spread around the mean. Skewness of 0.011 suggests quite normal distribution however Kurtosis of 1.227 suggests slightly flatter distribution compared to G1, G2, and G3 nevertheless gap does not scatter very much away from the mean. In this case we accept the hypothesis H_4: $\mu_4 \geq 0$ and agree that there is no negative gap with reference to the service empathy.

Tangibles (G_5)

We can say that the positive mean value of G_5 = 0.0794 suggests consumers' satisfaction with the tangibility of the service being provided. Positive value of skewness (0.633) suggests that tail is long towards right and Kurtosis value of 1.141 indicates relatively flatter distribution. In line with G2, G3, G4 we conclude that there is no negative gap in service tangibility therefore hypothesis H_5: $\mu_5 \geq 0$ is accepted.

Overall perceived service quality

Our statistical analysis confirms the relevance and robustness of factor analysis for this study in order to determine the level of satisfaction with the healthcare insurance service. Healthcare service is multi-dimensional and in this study we concentrated upon five dimensions of service which proved to be satisfactory

Table 7 Item wise factor loading for each dimension of expectation.

Dimensions and factor components	Component 1	Component 2	Component 3	Component 4	Component 5
E1	.832				
E3	.776				
E2	.701				
E5	.686				
E4	.650				
E8		.750			
E9		.737			
E6		.562			
E7		.542			
E12			.759		
E10			.728		
E11			.725		
E13			.553		
E16				.802	
E15				.791	
E14				.701	
E20					.745
E18					.741
E19					.731
E17					.592
Eigenvalues	2.680	2.092	1.936	1.761	1.990
% of variance	53.603	52.291	48.401	58.701	49.761

Table 8 KMO's Test for each expectation dimension.

Reliability	.807
Responsiveness	.660
Assurance	.710
Empathy	.630
Tangibles	.679

except that of Reliability (G_1). Statistics regarding overall quality of the service is provided in **Table 12**.

Descriptive statistics of overall service quality from **Table 12** show positive mean value of 0.026 of all gaps, suggesting significant level of satisfaction with the overall perceived service quality. Standard Deviation of 0.609 is quite moderate and similarly skewness of 0.287 shows distribution is slightly long towards right nevertheless Kurtosis of 3.061 indicates that the distribution is close to that of normal distribution and gaps are spread around the mean. Hence we conclude that overall service quality is promising. Nevertheless we argue that healthcare service quality is dynamic and requires continuous monitoring for all dimensions on the lines those of TQM (Total Quality Management) for continuous improvements.

Discussion

SERVQUAL framework has been applied which is widely used across the globe to measure various services' qualities. In global context SERVQUAL has been applied in number of different situations for example in India quality of life insurance was studied and it concluded that across all six dimensions there exists quality gap [31]. A study of hotel industry in Croatia showed that managers were not aware of consumers' expectation hence SERVQUAL helped identifying gaps and focusing quality issues [11]. In Bangladesh SERVQUAL application suggested that the quality of five star hotels is moderate [28]. Turkey example of Airline services provides conclusion that none of the passengers' perception responded to their expectations in any of the dimensions [34]. USA example of measuring service quality in private banking compares two quality measures i.e. SERVQUAL and Technical/Functional Quality and concludes that both the models may be unequally or asymmetrically applicable across different setting and situations [45]. Another interesting study looking into application of SERVQUAL scale over the past 20-years provides a summary of 30 applications that establishes usefulness of the approach across the globe in various industries whether it is related to service or product quality [46].

Compared to above studies results our research provides similar findings and proves that out of five dimensions of the service quality four dimensions have shown consumers' satisfaction while 'reliability' dimension of the service registered negative gap - meaning consumers are dissatisfied with the reliability of the service. Within the quality context reliability of the service acts as linchpin for the entire service structure and negative gap in this respect is quite detrimental to the service set up. One way of improving the service quality is to analyze factor loading in order to identify areas responsible for variance in the data. For example from **Table 9** we see E1 (expectation) has the highest factor loading of 0.832 means variance in the data is due to the service to be 'provided as promised'. Similarly factor loading of

Table 9 Item wise factor loading for each dimension of perception.

Dimensions and factor components	Component 1	Component 2	Component 3	Component 4	Component 5
P2	.800				
P3	.770				
P5	.702				
P4	.690				
P1	.575				
P7		.802			
P9		.782			
P8		.739			
P6		.693			
P10			.877		
P11			.829		
P12			.777		
P13			.727		
P16				.852	
P14				.836	
P15				.727	
P20					.823
P18					.814
P19					.732
P17					.677
Eigenvalues	2.532	2.279	2.589	1.953	2.335
% of variance	50.49	56.982	64.735	65.107	58.636

Table 10 KMO's Test for each dimension of perception.

Reliability	.778
Responsiveness	.740
Assurance	.778
Empathy	.652
Tangibles	.720

0.802 for E16 (consumers' best interest at heart) places high value on service providers behavior. Hence by looking at factor to factor loadings services managers can keep all those factors under scrutiny where variance is significantly high.

Further analysis of gap statistics at dimensional level also indicates room for improvements and setting priorities. For example negative gap in 'reliability' requires immediate attention, then comes 'assurance' with lowest positive gap of 0.0204, then 'empathy' with positive gap of 0.0250 and finally 'tangibles' with positive gap of 0.0794, all showing moderate satisfaction enabling managers to set targets for further improvements. By looking at factors loading and gap statistics we can say this study provides a robust mechanism of setting priorities to make service quality acceptable, responsive and customized. In brief SERVQUAL has ability to resolve quality issues rationally nevertheless there are certain areas of limitations of this study.

A major limitation is that the study has been performed only in Jeddah and Rabigh region where sample was drawn from a limited number of companies (employers) providing healthcare insurance. Although the sample size of 400 provides a good ground for analysis nevertheless there is scope for extending this research further encompassing larger geographical areas throughout the country.

Conclusion and Recommendations

We have tested the quality of healthcare across five dimensions of the service. Our results show quite moderate level of satisfaction in four dimensions of the service quality, except reliability which is vital element of the entire service structure. Without recipients' confidence in reliability it would be difficult to say that Saudi healthcare insurance industry is in a position to maintain the quality especially while it is going to experience huge demand due to shift in the government's policy. To resolve such issues this study indicates several areas where managers of services must closely scrutinize factors influencing the quality. By looking at health facilities in the area of study we can say results are true reflection of the situation. We have shown there are huge capital investments involved in healthcare infrastructure in the Kingdom nevertheless output from the services falls short of the required results. Similar situation is reflected in another study [13] with reference to quality of care in Saudi government's health facilities. Our approach is unique as we have concentrated on SERVQUAL that has revealed specific weakness in the system. We can therefore say confidently that SERVQUAL is an appropriate tool for assessing the service quality and identifying weaknesses.

As we mentioned already that this research concentrates on one region therefore care may be taken in interpreting the results. For more comprehensive results we recommend this research to be extended countrywide so that the quality of healthcare service through insurance is determined on regional basis in order to ensure there are no geographical, ethnic or demographic disparities in the service provision.

Table 11 Summary of perception and expectations gap scores.

Descriptive Statistics										
	N	Minimum	Maximum	Mean	Std. Deviation	Variance	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
Gap1	400	-1.80	3.80	-.0335	.63937	.409	1.149	.122	6.252	.243
Gap2	400	-2.25	2.75	.0362	.57729	.333	.286	.122	2.140	.243
Gap3	400	-1.75	3.75	.0204	.59513	.354	.619	.122	4.546	.243
Gap4	400	-2.33	2.33	.0250	.63275	.400	.011	.122	1.227	.243
Gap5	400	-1.50	2.50	.0794	.60240	.363	.633	.122	1.141	.243
Valid N (listwise)	400									

Table 12 Descriptive statistics for overall service quality.

	N	Minimum	Maximum	Mean	Std. Deviation	Variance	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
Overall SQ	400	-1.926	3.026	0.026	0.609	0.371	0.287	0.122	3.061	0.243
Valid N (listwise)	400									

We also recommend that CCHI to put in place a plan to educate service providers according to changing requirements of various consumers groups so that the service delivered is as acceptable, effective, customized and responsive as Saudi public and Saudi government desires.

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