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Significant components of service brand equity in healthcare sector

Hardeep Chahal and Madhu Bala
Department of Commerce, University of Jammu, Jammu, India

Received 24 October 2009
Revised 5 October 2010
Accepted 28 October 2010

Abstract

Purpose – The purpose of the study is to examine three significant components of service brand equity – i.e. perceived service quality, brand loyalty, and brand image – and analyze relationships among the components of brand equity and also their relationship with brand equity, which is still to be theorized and developed in the healthcare literature.

Design/methodology/approach – Effective responses were received from 206 respondents, selected conveniently from the localities of Jammu city. After scale item analysis, the data were analyzed using factor analysis, correlations, *t*-tests, multiple regression analysis and path modeling using SEM.

Findings – The findings of the study support that service brand equity in the healthcare sector is greatly influenced by brand loyalty and perceived quality. However, brand image has an indirect effect on service brand equity through brand loyalty (mediating variable).

Research limitations/implications – The research can be criticized on the ground that data were selected conveniently from respondents residing in the city of Jammu, India. But at the same time the respondents were appropriate for the study as they have adequate knowledge about the hospitals, and were associated with the selected hospital for more than four years. Furthermore, the validity and reliability of the data are strong enough to take care of the limitations of the convenience sampling selection method.

Originality/value – The study has unique value addition to the service marketing *vis-à-vis* healthcare literature, from both theoretical and managerial perspectives. The study establishes a direct and significant relationship between service brand equity and its two components, i.e. perceived service quality and brand loyalty in the healthcare sector. It also provides directions to healthcare service providers in creating, enhancing, and maintaining service brand equity through service quality and brand loyalty, to sustain competitive advantage.

Keywords Service brand equity, Perceived service quality, Brand loyalty, Brand image, Health services, Competitive advantage, India

Paper type Research paper

Introduction

Branding plays a special role in service firms as it increases customers trust (Berry, 2000), enables customers to better visualize the service products (Kim *et al.*, 2008), acts as a means of differentiation among competitive products (Motameni and Shahrokhi, 1998) and delivers value to the customers. All these factors help in generating value to the company (Bamert and Wehrli, 2005) and this value created or added by the brand is called brand equity (Erden *et al.*, 1999). Brand equity once considered essential for products, is vital for services as well. The extant literature suggests application of brand equity measures used in merchandise sector, to evaluate brand equity in service

International Journal of Health Care Quality Assurance
Vol. 25 No. 4, 2012
pp. 343-362
© Emerald Group Publishing Limited
0952-6862
DOI 10.1108/09526861211221518

The authors are extremely grateful to Mr Shyam Sharma, Writing Consultant, University of Louisville, USA, for his editing assistance and valuable suggestions to improve the manuscript.

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sector (Mackay, 2001). However Wang *et al.* (2009) and Riel van *et al.* (2001) remark that since number of differences exist between services and goods, consumers evaluate extension of service brands differently from non-service brands and therefore, separate conceptualization for service brand equity is required. Moreover, a brand is associated with a "company" in a service sector, unlike manufacturing sector (where it is linked with a product), and this necessitates to relook into the service brand concept (Wang *et al.*, 2009; Netemeyer *et al.*, 2004). Besides, role of consumers participation and involvement in the service process, and heightened competition among service providers further adds to the need to explore service brand equity in a different way (Mackay, 2001; Turley and Moore, 1995). However despite its importance in the service sector, the concept is not explored much in the service marketing literature (Krishnan and Hartline, 2001; Riel van *et al.*, 2001; Mackay, 2001; Kim *et al.*, 2003; Bamert and Wehrli, 2005). Although studies such as Lassar *et al.* (1995), Bailey and Ball (2006), and Berry (2000) developed conceptual framework of service brand equity, however, further insight is required to better understand and develop brand equity in services sector (Aaker, 1991). Since most of the studies focus on individual service brand equity components such as product loyalty (Herrmann *et al.*, 2007), service quality (Bamert and Wehrli, 2005), customer loyalty (Taylor *et al.*, 2004), service loyalty (Rauyruen and Miller, 2009), a comprehensive approach is required to develop service brand equity. Further, in comparison to other services, the concept of branding in healthcare organizations has drawn limited attention in the literature. Among a few studies conducted on healthcare brand equity, Kim *et al.* (2008) suggest that hospitals should focus on the development of customer relationship management to enhance brand equity, whereas Hausman (2004) finds patients' benefits and doctors' independence to be significant factors contributing to brand loyalty. The dearth of research on brand equity in healthcare organizations may be because healthcare service products are high credence quality products with complex and unique characteristics (Hariharan *et al.*, 2004). Further their performance is dependent on mix of qualitative factors such as quality of services of highly skilled personnel including technical and behavioral interaction quality, nature of treatment, types of patients and their awareness, availability of general as well as specialized services at a competitive price, availability of latest technical equipment, etc. (Thantry *et al.*, 2006), which make evaluation of healthcare services difficult. This study makes efforts to explore brand equity components in healthcare sector that can contribute in the development of service brand equity. It primarily evaluates perceived service quality, brand loyalty, and brand image, the three significant components of service brand equity and establishes their relationships with service brand equity in the healthcare sector of India.

Healthcare organizations in India are limited in their ability to increase brand loyalty primarily because they are not legally permitted to run any commercial advertising. Branding healthcare services can provide a platform for consumers/patients to reduce the influence of credence properties (i.e. the property in which one cannot evaluate healthcare service even after consumption or purchase, for example, surgery performed on a patient) (Corbin *et al.*, 2000). The brand equity concept can bring an advantage to the Indian healthcare market as India is enjoying the benefit of being one of the most preferred healthcare tourism destinations for patients from developing as well as developed countries (Thantry *et al.*, 2006). This consequently will increase the value of medical tourism industry in the near future.

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The paper is organized in the following manner. Brand equity concept and its significance are discussed in the first section. The next section discusses significant components of service brand equity and hypotheses to identify the relationship between service brand equity and its components. The subsequent section describes research design with emphasis on sample design, measurement, and scale purification analysis. The data analyses, tests, and hypotheses findings are presented along with validity, reliability, and sample profile in the next following section on data analysis. The study then concludes with major findings followed by limitations and future research.

Literature review and development of hypotheses

Brand equity is considered as the power of the brand that is built in the minds of the consumers on the basis of what they have learnt, seen, felt, and heard about the brand (Keller, 1998). Although in marketing, consumer aspect of brand equity, which focuses on the cognitive aspect of consumer, is frequently followed; but is conceptualized differently by different authors. Aaker (1991) defines brand equity in terms of a set of assets associated with the brand and these assets include brand loyalty, brand awareness, brand association, and perceived quality. These assets are further tested and verified by scholars such as Atilgan *et al.* (2005); and Pappu *et al.* (2005). However Keller (1993) considers brand equity in terms of brand knowledge that is, brand awareness and brand image. Lassar *et al.* (1995), on the other hand, associate brand equity with five dimensions such as performance, social image, value, attachment, and trustworthiness. Kim *et al.* (2003) linked service brand equity (hotels) using brand loyalty, brand awareness, perceived quality, and brand image. A further study by Kim *et al.* (2008) considered trust, customer satisfaction, relationship commitment, brand loyalty, and brand awareness as major factors affecting healthcare branding. The literature reveals that quality, loyalty, image, association and awareness are the important service brand equity components.

However, in the present study only three that is, brand loyalty/patient loyalty, perceived quality, and brand image are considered as significant components of service brand equity in healthcare. Brand association and brand awareness are implicitly considered.. Keller (2007) defines brand association in terms of associations attached to the brand. Being the outcome of patient loyalty, brand association is gauged in terms of patients' association with good quality healthcare services of the hospital. Further, brand awareness is also not specifically considered as a separate component since mature and experienced healthcare consumers are assumed in general to be well aware of core and specialized hospitals, Besides brand awareness being closely related with loyalty, quality and image, is indirectly considered in the measurement of the service brand equity components. Hence, only three components – perceived service quality, brand loyalty and brand image, are used to assess service brand equity in the healthcare sector. The impact of service brand equity in term of two outcomes that is, competitive excellent performance and continuous improved performance is also considered. The three service brand equity components are briefly discussed as under:

Perceived service quality

Perceived service quality is the consumers' overall perception about the quality/superiority of a particular product or service in comparison to other

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available service products. Aaker (1991) considers it as an intangible overall feeling about a brand that affects market share, price, and profitability. Since service quality provides a base for service differentiation for a company in terms of reliability, responsiveness, assurance, tangibility and empathy (Parasuraman *et al.*, 1985), the real test for its success depends on the competent quality of services it provides to the consumers. To qualify this test and to contribute to brand equity, hospitals must provide "service plus" that is, a combination of high quality professional service and best patient care, quality services that can delight patients. This subsequently will enhance brand name and image of the hospital (Shanthi, 2006) and add to its brand value. In line with these findings, the first hypothesis of the study is (Figure 1):

H1. Brand equity of healthcare services is directly influenced by perceived service quality.

Brand loyalty

The success of a brand in the long run depends on the loyal buyers, which in real sense contributes to the brand equity (Amine, 1998). Brand loyalty, which is considered as the strongest path leading to brand equity (Atilgan *et al.*, 2005), is defined as the attachment of a consumer towards a brand even when an organization makes changes in the price or other product features (Aaker, 1991). It is basically a function of behavior (i.e. repeat purchases of the brand) and attitude (i.e. dispositional commitment in terms of some unique value associated with the brand) (Aaker, 1991; Mellens *et al.*, 1996; Chahal and Bala, 2010). Bloemer *et al.* (1999) consider loyalty in services to be the result of purchase intentions, word of mouth communication, price sensitivity, and complaining behavior. In healthcare sector, service brand loyalty means loyalty of consumers who continue to prefer the services from the same healthcare providers (or a provider), who have positive influence on them. Chahal and Bala (2010) equate service brand loyalty with positive attitude (attitudinal loyalty) and repeat purchase behavior (behavioral loyalty) of consumers toward the hospital. In other words, loyalty of patients is the service brand loyalty of the healthcare institutions. For instance, satisfied patients prefer the same hospital for same or different treatments and may recommend it to their friends and relatives unlike dissatisfied patients who may discontinue their

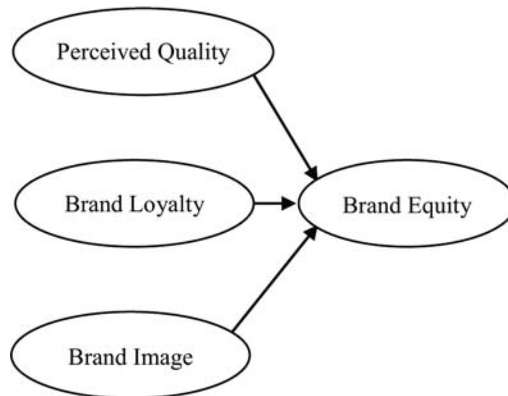

Figure 1.
Direct effect of perceived quality, brand loyalty and brand image on brand equity

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treatment from the same hospital (Corbin *et al.*, 2000). Thus, loyal patients generate a solid financial basis for future activities because even after discharge they may continue to support the healthcare organization through positive word of mouth, donation or some other form of co-operation. Despite its significance, public healthcare organizations take too lightly to the value, the loyal patients can add to their success. In other words, patients' loyalty is essential for healthcare units to retain patients and to survive in the competitive market. Consistent with the suggestions from existing literature, we propose the following hypothesis (Figure 1):

H2. Brand equity is directly influenced by brand loyalty.

Brand image

Image plays an important role in differentiating the service of a healthcare provider from that of its competitors (Shanthi, 2006). For example, a company with a positive corporate image about its programs can bring in individuality and differentiation that lead to high awareness, loyalty, and reputation (Heerden and Puth, 1995) and is ultimately in a position to attract consumers. Brand image is the consumers' perception of a brand as reflected by the brand associations held in their memory. Keller (1993) defines brand associations as the informational nodes linked to the brand in the memory of the consumers. In simple words, it reflects consumers' perception about brand based on their experience and knowledge (VanAuken, 2007). Further, scholars such as Chen (2009), Bibby (2009), and Wood (2000) highlight on the positive relationship between brand equity and image. Two kinds of relationships are observed in the literature that is, direct effect of brand image on brand equity and indirect effect on brand equity through mediating variables such as brand loyalty. This relationship implies that brand image determines brand loyalty and the degree of brand loyalty determines the value of the brand that is, brand equity. Marketing researchers highlight on direct relationship between brand equity and brand image (Figure 1) and indirect relationship between brand equity and brand image through brand loyalty as the mediating factor (Figure 2). Consistent with these findings, the study proposes following hypotheses:

H3. Brand equity is directly influenced by brand image.

H4. Brand image has indirect effect on brand equity through brand loyalty, which acts as a mediator.

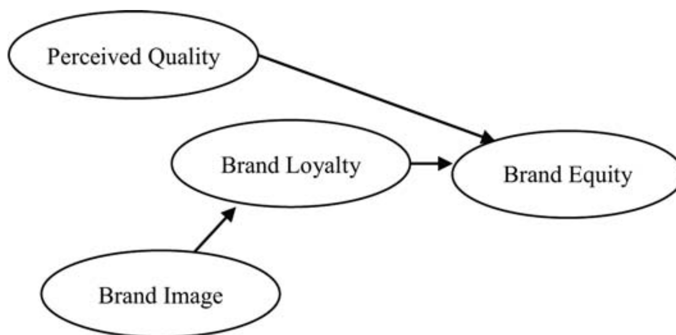

Figure 2.
Direct effect of perceived quality and brand loyalty on brand equity and indirect effect of brand image on brand equity

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Research design

Measurements

The measures used in the study consist of brand equity, brand loyalty, perceived quality, and brand image. The literature reveals that perceived quality includes phenomena such as assurance, tangibles, empathy, reliability, and responsibility which are mainly derived from the works of Parasuraman *et al.* (1985), Aaker (1991), Sohail (2003), Kim *et al.* (2003), and Thantry *et al.* (2006). From the perspective of service, brand loyalty is associated with service loyalty, purchase intention, word of mouth, price sensitivity and complaining behaviors, which are the main components of brand loyalty drawn from the studies of Bloemer *et al.* (1999), Lassar *et al.* (1995), and Kim *et al.* (2003). The third component that is, brand image, consists of items taken mainly taken, from the works of Lassar *et al.* (1995), and Kim *et al.* (2003). Guided by prior research studies, overall brand equity is measured in the literature using two items viz., excellent performance of the unit as compared to other units and continuous improved performance (Krishnan and Hartline, 2001; Ballester and Aleman, 2005). The same two items are used to study the impact of components of service brand equity. The specific items under four constructs are given in the Appendix.

Construction of scale

The scale items generated through literature review and discussions with academicians and medical professionals finally resulted in the construction of perceived quality with 18 items, brand loyalty with ten items, brand image with 6 items and brand equity with two items. This also checked the content validity of the instrument. Further efforts are also simultaneously made to examine the face validity of the instrument. All the dimensions are measured with the help of five-point Likert scale with "5" as "strongly agree" and "1" as "strongly disagree". Besides these, name of the hospital that is known to respondents and their readiness to provide the relevant information regarding that hospital (open-ended question) are also used. The questions on the years of their attachment with the hospital (multiple-choice), whether they have taken any service from the hospital last time (yes or no), type of treatment taken, and demographic profile are also included (Appendix).

Sample design

At the outset, the city of Jammu was divided geographically into four zones referred to as blocks, i.e. block I, block II, block III, and block IV. Each block comprised group of localities known as wards. The respective four blocks comprised 24, 23, 19 and 5 wards. The list of wards of different blocks was taken from the municipal corporation of the Jammu city. One ward from each block was selected randomly. Further, from each ward, respondents were selected conveniently. The random selection of respondents could not be carried out due to unavailability of authentic list of respondents. As such, 300 respondents were contacted conveniently from various randomly selected localities of Jammu city (J&K, North India) for the data collection on perceived quality, brand image, and brand loyalty in healthcare sector. Further, respondents selected were appropriate for the study as they had adequate knowledge about the hospitals being associated with them for at least one year. Out of 300 questionnaires distributed in the selected four wards (75 each), effective response came out to be 66.67 percent, i.e. 206 questionnaires were found to be complete in all aspects.

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Scale item analysis

The initial scale of perceived quality, brand loyalty and brand image consisted of 18 items, ten items, and six items respectively. The assessment and purification of data is done in the following ways:

(1) At the outset, exploratory factor analysis was conducted individually for the three constructs (perceived quality, brand loyalty, and brand image).

(2) Items that were poorly related to their hypothesized factors or that were associated with more than one factor were deleted.

(3) Using the Cronbach alpha (α) estimate (less than 0.7), item to total correlation (less than 0.25), measure of sampling adequacy (MSA) (less than 0.7), inter-item correlation (less than 0.3) and factor loading (less than 0.50) criteria, unreliable items were deleted in respective sub constructs (Tables I and II).

(4) These steps were repeated until clean factors emerged.

(5) Lastly, overall exploratory factor analysis was conducted to see that these factors do not merge with other factors.

The 18 items that were initially included in the perceived quality scale were reduced to 15 items in a single stage. This process resulted in three factors of perceived quality, namely, staff behavior, assurance and tangibles. The brand loyalty scale, which in the beginning consisted of ten items, was reduced to six items in three stages, and resulted into two factors that is, attitude and behavior. Likewise, brand image comprising 6 items, was analyzed and only one factor emerged without any reduction of items (Table II). Lastly, factor analysis was also carried out on total reduced 27 items ($15 + 6 + 6$) to see whether same results emerged. This process produced the same results and overall six different factors emerged. Further, variance explained by different factors also came out to be same. These factors according to their relative significance came out to be staff behavior, brand image, assurance, attitudinal loyalty, tangibles, and behavioral loyalty. Since only two items were used to measure service brand equity, factor analysis was not run on this scale.

Reliability and validity

The reliability and validity are measured for all the three constructs individually as well as for the entire instrument. The overall reliability alpha (α) value for perceived quality scale came out to be 0.93 (before using factor analysis) and 0.90 (after using factor analysis) and for brand loyalty scale reliability alpha (α) value came out to be 0.72 (before using factor analysis) and 0.78 (after using factor analysis). Similarly, overall reliability alpha (α) value for brand image arrived at 0.85 (no items were deleted as the scale remained the same). All the values of reduced scale indicate good reliability of the instrument (Tull and Hawkins, 2005) (Table I). The construct validity of the scales was verified with the help of Kaiser-Meyer-Olkin (KMO). The KMO values for perceived quality, brand loyalty, and brand image came out to be 0.85, 0.76, and 0.78 respectively, thereby indicating good construct validity (Table I). The overall reliability alpha (α) value for perceived quality, brand loyalty, brand image and brand equity came out 0.90 0.78, 0.85,and 0.61 respectively (Table I).

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Table I.
KMO values, number of items deleted, total number of items after deletion and cumulative percentage at each stage of factor analysis

S.No.	KMO values after deletion of items	Corrected item-total correlation	Cronbach value if item delete	Cronbach alpha value (overall scale)	Number of items deleted	Total number of items after deletion	Cumulative (%)
Brand loyalty							
1	0.73	–	–	0.72	–	10	59.63
2	0.73	0.12	0.75	0.75	1	9	53.56
3	0.72	0.24	0.76	0.78	1	8	58.56
4	0.71	0.42	0.77	0.79	1	7	64.57
5	0.76	0.41	0.78	0.78	1	6	68.92
Perceived quality							
1	0.86	–	–	0.93	–	18	63.84
2	0.85	*	*	0.90	3	15	64.00
Brand image							
1	0.78	–	–	0.85	–	6	57.98
Overall							
1	0.86	–	–	0.93	–	28	67.56
Brand equity							
1	–	–	–	0.61	–	2	–

Note: *Factor loadings less than 0.50

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	Mean score values	Std. deviation	Factor loading	Percentage of variance
Brand loyalty				68.92
Attitude				
Prefer for same treatment	4.34	0.78	0.81	
Prefer for different treatment	4.12	0.78	0.81	
Positive attitude	4.07	0.95	0.72	
Behavior				
Selected as first choice	3.66	0.87	0.86	
Recommend to others	3.77	0.73	0.84	
Generally visited hospital	3.70	0.88	0.75	
Cumulative percentage of variance				
Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy				0.76
Rotation converged in three iterations				
Brand image				57.98
Sincere to patient	3.84	0.81	0.82	
Clean environment	3.83	0.85	0.80	
Performs social activities	3.76	0.95	0.75	
Quiet and restful	3.75	0.87	0.75	
Positive image	4.01	0.69	0.74	
Differentiating image in terms of quality	3.82	0.86	0.69	
Cumulative percentage of variance				
Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy				0.78
Perceived quality				64.00
Staff behavior				
Ready to help you	3.77	0.84	0.78	
Ready to respond to request	3.75	0.92	0.77	
Effective communication with patient	3.91	0.76	0.74	
Individual attention	3.61	0.88	0.71	
Best interest at heart	3.58	0.91	0.70	
Health problems accurately identified	3.83	0.82	0.67	
Provide services right at the first time	3.91	0.87	0.64	
Caring staff	3.53	0.90	0.59	
Assurance:				
Courteous staff	3.86	0.91	0.84	
Safe feeling	3.87	0.83	0.81	
Knowledgeable to answer query	3.88	0.91	0.78	
Supportive behavior	3.86	0.78	0.72	
Tangibles				
Adequate stock of medicine	3.68	1.05	0.76	
Modern equipment	3.99	0.79	0.69	
Good parking area	3.77	0.93	0.64	
Cumulative percentage of variance				
Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy				0.85
Rotation converged in five iterations				

Table II.
Factor-wise mean score values, factor loading values and percentage variance

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Results

Sample characteristics

The demographic characteristics of the sample, viz., gender, age, income, health insurance taken, education, occupation, and type of treatment taken are shown in Table III. In gender group, about 54.9 percent were male and 45.1 percent were female, and majority of them belonged to age group of "20-35" (48.5 percent), followed by "35-50" (41.7 percent) and above 50 (9.7 percent). About 37.9 percent patients fell in $2,400-$3,600 annual income group, followed by 37.4 percent in $1,200-$2,400 annual income group, 17.5 percent in income group below $1,200, and 6.8 percent in income group above $3,600. As far as health insurance is concerned, only 32 percent have purchased medical insurance policy. Most of the respondents' were educated: graduate (47.6 percent), post graduate (31.6 percent), and high school (18.4 percent). Majority of them belonged to the service class (48.1 percent) followed by professionals (30.6 percent), and business class (15.5 percent). A few of them were dependent (4.4 percent). Besides, the various kinds of

Particulars	Frequency	%
Gender		
Male	113	54.9
Female	93	45.1
Age (in years)		
20-35	100	48.5
35-50	86	41.7
Above 50	20	9.7
Monthly income (in Rs)		
Below 5,000	36	17.5
5,000-10,000	77	37.4
10,000-15,000	78	37.9
Above 15,000	14	6.8
Health insurance taken		
Yes	66	32
No	134	65
Education		
Illiterate	5	2.4
Matriculate/+2	38	18.4
Graduate	98	47.6
Post graduate +	65	31.6
Occupation		
Service class	99	48.1
Business	32	15.5
Profession	63	30.6
Dependent	9	4.4
Type of treatment taken		
ENT	33	16
Skin	18	8.7
Surgery	35	17
Any other	110	53.4

Table III.
Demographic profile of the respondents

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treatment taken by these people in the hospitals include ENT (16 percent), skin (8.7 percent), surgery (17 percent) and other services (53.4 percent) (Table III). Further, the most preferred hospital in the city was Government Medical College (GMC) which was used by 60.1 percent of the total respondents. The second preferred hospital was Batra (18.2 percent), and other hospitals included Government Hospital at Gandhi Nagar (8.4 percent), SMGS (4.9 percent), Bee Een General Hospital (4.4 percent), and Army Hospital (.5 percent). A total of 96.6 percent of the respondents used services from the hospital to which they have given preference. A total of 62.07 percent of the respondents were attached to the hospital for more than four years. Similarly, 5.91 percent of the respondents had been known to the hospital for less than one year, 6.90 percent for one year, 8.37 percent for two years, and 16.75 percent for three years.

Data analysis

Relationships between service brand equity and components of brand equity

The relationships between perceived quality and brand equity ($r = 0.531$), brand loyalty and brand equity ($r = 0.569$), and brand image and brand equity ($r = 0.372$) with respective probable errors as 0.03, 0.03 and 0.04 (all less than respective coefficient of correlation) indicate the significance of the three bilateral relationships (Gupta, 2001). This is further supported through *t*-values (Table IV). Strongest (but average) linkage with brand equity in healthcare sector is indicated by brand loyalty followed by perceived quality and brand image. The result is similar to the findings of Atilgan *et al.* (2005) and quite acceptable because brand loyalty is affected by both perceived quality and brand image and as such has a strong influence on brand equity.

Inter-relationship and overall impact of perceived quality, brand image and brand loyalty on brand equity

Inter-relationships among brand equity components reveal high and significant relationship between perceived quality and brand image ($r = 0.685$) followed by perceived quality and brand loyalty ($r = 0.623$) and moderate relationship between brand loyalty and brand image ($r = 0.496$) (Table IV). The results lay focus on the significance of perceived quality that affects all relationships in the healthcare industry. After examining the bilateral inter-relationships between variables, the effect of independent variables (i.e. perceived quality, brand loyalty, and brand image) on dependent variable (i.e. brand equity) was checked with the help of multiple regression analysis (Table V). Before proceeding, multicollinearity of the three independent variables was checked using three criteria viz., tolerance value (less than 5), variance inflation factor (greater than 0.2), and the condition index value (less than 30) (Gaur and

Components of service brand equity	Brand image	Perceived quality	Brand loyalty	Brand equity
Brand image	1			
Perceived quality	0.685*	1		
Brand loyalty	0.496*	0.623*	1	
Brand equity	0.372* (0.040)[a]	0.531* (0.033)[a]	0.569* (0.031)[a]	1

Notes: *Correlation is significant at the 0.01 level (one-tailed); [a]probable error (PE)

Table IV. Correlation among brand equity, brand loyalty, perceived quality and brand image

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Table V. Regression and multicollinearity values brand loyalty, perceived quality and brand image

Model	Constant	Perceived quality	Brand image	Brand loyalty	Sum of squares	df	Mean square	F	Sig.
Standardized coefficients Beta values	–	0.31	−0.036	0.393					
t-values	0.056	3.605	−0.464	5.446					
Significance	0.955	0.000	0.643	0.000					
Tolerance	–	0.424	0.522	0.603					
VIF (variance inflation factor)	–	2.361	1.914	1.659					
Eigenvalue	3.958	0.020	0.013	0.009					
Condition index	1.000	13.989	17.371	21.440					
Regression					70.237	3	23.412	39.802	0.000
Residual					117.056	199	0.588		
Total					187.293	202	–	–	–

Notes: $R = 0.612$, R square = 0.375, Adjusted R square = 0.366, Standard error of the estimates = 0.767. Predicators: perceived quality, brand image and brand loyalty and dependent variable: brand equity; Durbin-Watson = 1.718

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Gaur, 2006) to examine the multiple relationship strength. The results indicate absence of multicollinearity. Similar to the correlation results, β (beta) coefficient values indicate that brand loyalty influences brand equity ($p = 0.00$) followed by perceived quality ($p = 0.00$). However, effect of brand image on brand equity, though negative, is found to be insignificant ($p = 0.64$) in the healthcare services. We can state that both perceived quality and brand loyalty are significant and positively related to brand equity of healthcare services, whereas the predictive ability of brand image is negative (beta $= -0.036$) and insignificant in the healthcare sector. Overall, the adjusted R square value of the model (0.336) reflects about 33.6 percent variance explained by three independent variables for brand equity.

Since the effect of brand image is insignificant in the three component model, endeavor is made to recognize the role of brand loyalty as a mediating variable between brand image and brand equity (Table VI). The commonly applied method that is, three step regression model (Baron and Kenny, 1986, p. 1177), was used to examine the role of brand loyalty as a mediator between the two. The three steps represent three regression runs which focus on brand equity as dependent and brand image as independent variables in the first run (step 1); brand loyalty as dependent and brand image as independent variables in the second run (step 2) and brand equity as dependent and brand image and brand loyalty as independent variables in the last run (step 3). The results from the step 1 indicate significant influencing power of brand image on brand equity (Beta $= 0.339$, $t = 5.140$, $p = 0.00$). The step 2 demonstrates brand image as the significant predictor of brand loyalty (Beta $= 0.456$, $t = 7.326$, $p = 0.00$). The step 3 identifies the effect of brand loyalty (mediating variable) and brand image variables on brand equity. The highest beta value for brand loyalty (Beta $= 0.515$, $t = 7.952$, $p = 0.00$) and insignificant brand image (Beta $= 0.103$, $t = 1.595$, $p = 0.112$) support brand loyalty as partially mediating the relationship between brand image and brand equity (*H4*).

Discussion

The study focuses on perceived quality, brand loyalty, brand image and their relationships with service brand equity in healthcare sector (Table II). The study findings reveal that brand loyalty and perceived quality are important components that have dominating effect on service brand equity. The brand image on the other hand has indirect effect on service brand equity through brand loyalty in the three-component model. Further, between service brand loyalty and perceived service quality, service brand loyalty is the stronger factor that influences brand equity. The findings support the hypotheses that healthcare brand equity is directly influenced by perceived quality (*H1*) and brand loyalty (*H2*) and indirectly influenced by image through brand loyalty (*H4*). The third hypothesis that brand equity is directly influenced by brand image is rejected. However, at the same time brand loyalty partially mediates the relationship between brand image and brand equity. The interdependence between brand image <– > perceived quality, and brand loyalty <– > perceived quality indicate that hospitals delivering good quality services have good image in the minds of patients' and similarly, hospitals with good image is expected to deliver good quality of services. Likewise, hospitals delivering quality services contribute positively to brand loyalty of the hospital and which ultimately affects service brand equity.

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Table VI.
Multiple regression results for mediation model (brand loyalty as a mediator between brand image and brand equity)

Regression run	Variables		Unstandardized coefficient		Standardized coefficients			
	Dependent	Independent	*B*	Standard error	Beta	*t*-value	*p*-value	*R*-square
Step 1	Brand equity	Brand image	0.440	0.000	0.339	5.140	0.00	0.339
Step 2	Brand loyalty	Brand image	0.390	0.000	0.456	7.326	0.00	0.456
Step 3	Brand equity	Brand image	0.134	0.112	0.103	1.595	0.112	0.325
		Brand loyalty	0.784	0.000	0.515	7.952	0.00	

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Conclusion

The study focuses on framework of service brand equity and its relationship with perceived service quality, brand loyalty, and brand image and the impact of perceived service quality, brand loyalty, and brand image on brand equity in the healthcare sector. Specifically, the results of the study indicate that perceived quality and brand loyalty have positive influence on brand equity in healthcare sector. The service provider when implements items those positively contribute to perceived quality and brand loyalty, builds service brand equity. The study findings reveal certain significant outcomes relating to brand loyalty and perceived quality. First, brand loyalty is linked with indicators associated with attitudinal loyalty and behavioral loyalty (i.e. consequences of consumer satisfaction). High and positive consumers' perception towards brand loyalty points out the preference of patients to avail the same or different medical treatments from the same hospital in future as well. Such patients share positive experiences about the hospital services with their friends and relatives and recommend the hospital to them. Later this subsequently helps in building positive hospital image in the minds of the users and potential users. Second, to strengthen perceived service quality, patients indicate that hospital management should focus on staff behavior, assurance, and tangibility. Specifically, communication quality, prescription quality, promptness in response to queries, and caring attitude of the staff are considered by patients as important characteristics of staff behavior that contribute to perceived service quality. Whereas assurance quality with focus on feeling of safety in the minds of the patients, responsive quality, and supportive attitude of the staff contributes to perceived service quality. Lastly, tangible factor items such as adequate stock of medicine, availability of state of art technology equipments and availability of parking facility also adds to perceived service quality. Overall results underscore that perceived service quality helps in accelerating the recovery process and curing patients' health problems, through effective healthcare service delivery process, that ultimately affects brand loyalty. Moreover delivering qualitative customized services can build trust and positive feeling in patients for the hospital and make them loyal, and which subsequently enhance brand equity of the institution. This consequently results in superior performance and sustainable competitive advantage of an organization (service brand equity outcomes). Regarding the third component of service brand equity, the study concludes that predictive power of brand image is insignificant in influencing service brand equity. However, brand loyalty is found to be a mediating variable that influences the relationship between brand image and brand equity. That is, service provider through enhancing brand loyalty can build organizational image and work for the development of service brand equity. Overall, the study concludes that brand loyalty and perceived quality are the two major components that contribute to the development of service brand equity in healthcare sector. More importantly, organizations with high degree of service brand equity will be efficient in sustaining competitive performance.

Limitations and future research

As with many studies, the research was conducted amidst certain limitations. First, the study could be criticized on the ground that only three service brand equity components were examined and analyzed. Second, perceived service quality, brand loyalty, and brand image need to be considered and framed as formative constructs

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rather than as reflective constructs to develop the concept more concretely. Third, future research should analyze more explicitly the other antecedents such as customer value, satisfaction, customer experiences, social responsibility, medical quality etc. along with perceived quality, brand loyalty and brand image for more comprehensive research in the future. Besides brand association and awareness can also be considered as explicit components in the future work. Fourth, the cross-sectional design of the study is another limitation as all brand equity measures were collected at a single point of time. Hence, longitudinal study is required to validate the causal relationships among brand equity constructs established in the study in future. Besides, replications in other health service environments such as dental, physiotherapy and ayurvedic and in other non-health environments such as insurance, financial, education etc. can also support study findings in conceptualizing brand equity.

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Appendix

Measurement Items Used for Perceived Service Quality, Brand Image, Brand Loyalty and Brand Equity

a) Please write down the name of the hospital (only one) for which you are going to provide all the information being asked below……………………………………………………...
b) Last time you availed the services of this (above mentioned) hospital Yes/No
c) For how many years you had been attached (or known) to this hospital (Please mark tick √)
a) Less than 1 year ☐ b)1 year ☐ c) 2 years ☐ d) 3 years ☐ e) 4 years ☐ f) More than 4 years ☐

Section A
Please encircle the number according to the extent of your agreement and disagreement with the statement
(Note: 5 = Strongly Agree, 4 = Agree, 3 = Neither Agree nor Disagree, 2 = Disagree, 1 = Strongly Disagree, 9 = Not Known, 99 = Not Applicable).

A. PERCEIVED QUALITY							
Hospital staff are knowledgeable to answer your question.	5	4	3	2	1	9	99
Hospital staff are courteous while dealing with patients.	5	4	3	2	1	9	99
You feel safe in dealing with hospital staff.	5	4	3	2	1	9	99
Hospital staff have supporting behaviour.	5	4	3	2	1	9	99
The hospital is equipped with modern equipments.	5	4	3	2	1	9	99
The hospital has adequate stock of medicine.	5	4	3	2	1	9	99
The hospital has clean premises.	5	4	3	2	1	9	99
Hospital rooms and toilets are neat and clean.	5	4	3	2	1	9	99
Employees have neat and professional appearance.	5	4	3	2	1	9	99
The hospital has a good parking area.	5	4	3	2	1	9	99
The health problems are always accurately identified.	5	4	3	2	1	9	99
Hospital staff provide services right at the first time.	5	4	3	2	1	9	99
Employees give individual attention to patients need.	5	4	3	2	1	9	99
Hospital staff deals with patients in caring fashion.	5	4	3	2	1	9	99
Hospital staff have patients best interest at heart.	5	4	3	2	1	9	99
Hospital staff communication with the patient is effective.	5	4	3	2	1	9	99
Hospital staff quickly and efficiently respond to your request.	5	4	3	2	1	9	99
Hospital staff always ready to help you.	5	4	3	2	1	9	99
B. SERVICE BRAND/PATIENT LOYALTY							
You select this hospital as first choice.	5	4	3	2	1	9	99
You or your family member generally visit this hospital.	5	4	3	2	1	9	99
You would like to recommend this hospital to others.	5	4	3	2	1	9	99
If your friend or your relative wants to avail services, you would recommend the same hospital.	5	4	3	2	1	9	99
You have a positive attitude/feeling towards the hospital.	5	4	3	2	1	9	99
You or your family prefer the hospital for the same treatment.	5	4	3	2	1	9	99
You or your family prefer the hospital for the different treatment.	5	4	3	2	1	9	99
If there is variation in price, you will go to another hospital.	5	4	3	2	1	9	99
You will complain about the hospital to others.	5	4	3	2	1	9	99
In future you may switch to other hospital.	5	4	3	2	1	9	99
C. BRAND IMAGE							
The hospital has positive image in your mind.	5	4	3	2	1	9	99
The hospital performs social activities.	5	4	3	2	1	9	99
The hospital is sincere to the patients.	5	4	3	2	1	9	99
The hospital has differentiated image in terms of quality.	5	4	3	2	1	9	99
The hospital is quiet and restful.	5	4	3	2	1	9	99
The hospital has clean environment.	5	4	3	2	1	9	99
D. SERVICE BRAND EQUITY							
This hospital has excellent performance as compared to other hospital in the city.	5	4	3	2	1	9	99
Hospital is continuously improving its performance.	5	4	3	2	1	9	99

(continued)

Figure A1.
Measurement items used for perceived service quality, brand image, brand loyalty and brand equity

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Section B

Gender	Male		Female							
Age	20-35 years		35-50 years		Above 50 years					
Monthly income (Rs.)	Below 5,000		5,000-10,000		10,000-15,000		Above 15,000			
Education	Illiterate		Matriculate/+2		Graduate		Post Graduate+			
Occupation	Service class		Business		Professional		Dependent			
Type of treatment taken	ENT		Skin		Surgery		^^Any other			
Have you availed any health insurance policy	Yes		No							
How much value do you think the hospital has gained in the market	Very poor		Poor		Average		Good		Excellent	

^^Write the name of the any other treatment taken (if applicable) ……………......

(Thank you for your participation)

Figure A1.

Corresponding author
Hardeep Chahal can be contacted at: chahalhardeep@rediffmail.com

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