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The Influence of Brand Equity Constructs on Overall Brand Equity and Its Impact on Brand Image: An Structural Equation Modelling Approach

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Abstract: The objective of the current research is to determine the effect of perceived quality and brand trust on brand equity; and further investigate the impact of brand equity on brand image by testing a hypothetical model. A structured questionnaire was adopted to gather the responses from 662 patients who utilized the hospital services from one of the leading private hospitals of Hyderabad, India, by adopting a purposive sampling technique. The current research investigated the attributes of brand equity constructs, overall brand equity, and brand image and the results were analysed via confirmatory factor analysis and structural equation modelling using AMOS 21v. The outcomes of the confirmatory factor analysis statistics of the structural model revealed that perceived quality and brand trust have a significant and positive effect on brand equity while brand equity have an insignificant effect on brand image in the study hospital. The current paper is one of the very limited empirical studies that explored the relationships between the brand equity constructs and brand image for a life caring & saving credence-dominant service, particularly in the backdrop of a Hyderabad corporate hospital, which has been ignored by the previous works.

Keywords: *Brand equity, brand image, brand trust, perceived quality, private hospital.*

Introduction

Over time, the concept of branding has experienced substantial theoretical advancement, evolving into a critical factor for product and service enterprises, particularly as customers now have unprecedented access to vast amounts of information and a wide array of product and service options compared to earlier times (Keller, 2001; Prahalad and Ramaswamy, 2004). To distinguish their products from rivals, firms must cultivate a strong corporate brand identity in consumers' minds. A well-established brand can augment the perceived value of a commodity, thereby enhancing Brand Equity (here onwards BE) (Aaker, 2009; Keller, 2001). Aaker (2009) argued that BE offers advantages not only to consumers but also to the corporation. From the standpoint of the consumer, brands facilitate the purchase decision-making process by mitigating perceived risk and are frequently recognized as reliable indicators of quality. Furthermore, consumers imbue brands with emotional value, encompassing sentiments of

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dignity and pride (Aaker, 2009). Conversely, from the company's viewpoint, strong brand equity can drive higher revenues, foster customer loyalty, and make the business less vulnerable to competitive marketing strategies (Keller, 1993).

In service-oriented industries, healthcare operations are particularly complex and present significant opportunities for research due to their multifaceted nature (Berry and Seltman, 2007; Grönroos, 1990). The medical service industry encounters distinctive marketing obstacles because of the close interaction between service providers and consumers. Such obstacles are predominantly apparent in the characteristics of services, as the efficacy of these services is challenging to evaluate despite their application (Moorthi, 2002). Healthcare, as an intangible service, is especially associated with significant perceived risks, and the concept of branding remains relatively novel within this domain (Mangini, 2002). The healthcare industry is heavily regulated and subject to intense public scrutiny, factors that contribute to the slower progression of branding strategies (Kotler and Clarke, 1987). While the concept of BE is well-established as a theory in general business practices, its utilization in the healthcare sector remains insufficiently investigated, notwithstanding the growing significance of BE in operational frameworks and scholarly studies (Kim *et al.*, 2008).

Healthcare service branding

Service branding represents an effective strategy for providing a signal to the consumers that the company has rendered a determined service offering that is exceptional and worthy of its name (de Chernatony and Riley, 1998; Keller, 2013). Amidst the advancements taking place in the service sector, numerous challenges are emerging in the brand management of service brands (Berry, 2000; Iglesias *et al.*, 2011). Branding has unequivocally evolved into a potent weapon for services (Aaker, 2012; Kapferer, 2008). Brands help in identifying and rendering meaning to the distinctive services offered by an organization (Aaker, 2012; Keller, 2001). Within the framework of a service brand, logos, corporate identities, and trademarks are the visual signs that attribute for the value of a brand, with the logo fulfilling a fundamental function in enhancing brand recognition (Henderson and Cote, 1998; Keller, 2013). The logo is a component of the brand but not a brand by itself (Henderson and Cote, 1998; Wheeler, 2017). A logo constitutes the visual identity of a brand and communicates its attributes, while serving to authenticate and confer recognition upon a brand, it cannot replace the actual consumer experience (Iglesias *et al.*, 2011; Keller, 2013). A brand emerges as a consequence of multiple weeks of intricate meetings and organizational decisions, yet consumers prefer a brand within a few seconds, and their perspectives are distinct from that of a brand manager (Aaker, 2009; Keller, 2013). Consumers do not receive remuneration from the firm and their jobs are not committed to the brand, they simply wish to make an instant interpretation of the brand and hence in the interest of aiding them, a brand needs to be conveyed distinctly (Fournier, 1998; Schmitt, 2010).

Nevertheless, brand management in the healthcare context is in no way a novel concept; in the current-day environment, patients possess enhanced opportunities and an extensive array of detailed options than previously available, ultimately leading to elevated expectations, and therefore, the brand's content must effectively engage and promptly retain consumers (Berry and Seltman, 2007; Iglesias *et al.*, 2011). A brand is a unique core element and represents the essence and spirit of a company; therefore, the management of brands has taken on a critical function (de Chernatony and Riley, 1998; Keller, 2001). The integrity of a service brand is incessantly evaluated via the experiences of the consumers and the actions of employees (Berry, 2000; Grönroos, 1990). Brands need to stand for truth and must be authentic, convincing, potent, and distinctive (Kapferer, 2008). Right from the first engagement, a brand's credibility is challenged. Each aspect, from the attitude of a telephone receptionist to a book of beneficial specifications, will affect consumer perceptions of the brand (Berry, 2000; Zeithaml

et al., 1996). Organizations aiming for a perpetual victory need to produce the utmost compelling, pertinent, and persistent brand episodes for their consumers (Iglesias *et al.*, 2011; Schmitt, 2010). Currently, organizations are exploring innovative and supplementary methods to enhance awareness regarding brand and consumer engagement (Keller, 2013; Prahalad and Ramaswamy, 2004).

Simultaneously, consumers are increasingly discerning and difficult to satisfy, and consequently, brand proprietors are required to deliver superior services that align with a persuasive vision and are executed with authentic dedication to realizing the satisfaction of a consumer (Aaker, 2009; Zeithaml *et al.*, 1996). Within the previously mentioned framework, branding is crucial even in the healthcare context, because the intangible nature of healthcare services leads to difficulty in assessing quality, and consequently, developing effective branding strategies is essential for the healthcare industry (Berry and Seltman, 2007; Iglesias *et al.*, 2011).

Operationalization of study constructs

Perceived Quality (PQ)

Perceived Quality is operationalized as “the patient’s perceived value of the hospital’s equity and how well a resource surplus i.e., a combination of specialized capabilities, optimal patient care delivery alongside a quality service can fulfill their needs” (Zeithaml, 1988).

Brand Trust (BT)

Brand Trust is operationalized as “the confident expectations of the brand’s perceived credibility and benevolence in contexts involving risk to the patient” (Doney and Cannon, 1997).

Overall Brand Equity (OBE)

Overall Brand Equity is operationalized as “the influence of the brand established in the minds of the patients derived from their experiences of what they have learned, seen, felt, and heard about the brand” (Keller, 2001).

Corporate Brand Image (CBI)

Corporate Brand Image is operationalized as the “perceptions regarding a brand manifested through the brand associations stored within consumers' memory” (Keller, 1993).

Literature Review & hypotheses development

Effect of Perceived Quality on Overall Brand Equity

To theorize the impact of PQ on OBE, the present study incorporated the results of various researchers who articulated the interaction between the two constructs. Initially, Aaker (2009; 2012) postulated PQ, as one of the principal parameters of customer-based BE, and in addition to this, Yoo and Donthu (2001), Pappu *et al.* (2006), Pappu and Quester (2008), Tong and Hawley (2009) conducted empirical studies confirming PQ as a determinant of customer-based BE. Moreover, Wang *et al.* (2011) utilized the Partial Least Squares-Structural Equation Modeling (PLS-SEM) technique to formulate a robust and efficient BE index. The index was constructed by evaluating patient perceptions on key indicator metrics through a sample of 250 patients from a hospital in Taiwan and the results indicated that the BE index, with PQ as one of its indicators, is both parsimonious and sufficiently comprehensive to effectively oversee and encapsulate the entire scope of BE within the specified healthcare environment. Subsequently, Chahal and Bala (2012) examined the interconnections between BE and its fundamental components within the healthcare domain. Their study involved a sample of 300 patients who had been associated with selected hospitals for at least one year. The participants were conveniently recruited from multiple randomly limited locations of Jammu city, Jammu & Kashmir, North India. The outcomes revealed that, within the healthcare context, PQ

demonstrates a significant relationship with BE. This result contributes to advancing the understanding of the interrelations among the PQ and BE construct in healthcare environments. In addition to this, Shekhar Kumar *et al.* (2013) designed a 41-item scale to examine the effect of PQ on overall hospital BE. Data was gathered from 902 patients who received care at hospitals situated in Tier 1, 2, and 3 cities in India. Hospitals were chosen using disproportionate stratified random sampling, whereas patients were selected through convenience sampling, and the findings demonstrated a statistically significant and positive effect of PQ on BE. Furthermore, Piaralal and Mei (2015) utilized a 47-item scale to examine the effect of PQ, brand loyalty & brand image on BE. The investigation applied convenience sampling and included 200 respondents living in Selangor and Wilayah Persekutuan, Malaysia, who accessed outpatient services at corporate hospital settings in Klang Valley, with results indicating that PQ was the highest contributor to BE, succeeded by brand image and brand loyalty. Additionally, the research demonstrated significant correlations between PQ, brand loyalty & brand image with BE. Subsequently, Das and Mukherjee (2016) formulated an assessment scale to measure customer-based brand equity within the context of healthcare tourism. Data was gathered by employing convenience sampling method from 304 patients living in Kolkata, Delhi, and Bhubaneswar, India who participated in medical treatment decisions and visited Indian hospitals for complex medical evaluations, such as surgical procedures and treatments for heart, kidney, and liver diseases. The current study led to a 25-item scale for quantifying customer-based BE in healthcare tourism and delineated four principal dimensions: brand awareness, perceived quality, brand loyalty, and brand authenticity. Adding on to this, Tiwari *et al.* (2016) conducted an empirical investigation to evaluate the contribution of three constructs, i.e., perceived quality, brand loyalty & brand image towards BE in a tertiary care super specialty teaching hospital. The researchers formulated a 33-item measurement scale and administered it to 150 patients along with their companions who were admitted to different general and specialized wards within the hospital. The findings indicated that perceived quality exerted the most significant influence on the hospital's BE among the three examined variables. Moreover, Shriedeh (2019) conducted an empirical investigation to investigate the mediating effect of service quality between CRM & BE within the healthcare tourism sector in Jordan. The study employed a 55-item scale and was implemented on a sample of 650 outpatient foreign tourists who availed care at five major private hospitals in Amman: Jordan Hospital, Islamic Hospital, Arab Medical Centre, Specialty Hospital, and Al-Isra'a Hospital. A systematic random sampling technique was utilized, selecting every fourth participant for inclusion. The paper identified that service quality had a significant effect on BE. Mediation analysis revealed that service quality partially mediated the relationship between CRM & BE. Furthermore, service quality had a stronger impact on BE than CRM. Lastly, Fong and Goh (2021) conducted an empirical investigation to determine the precedents & outcomes of brand equity in Penang corporate hospital settings, in Malaysia, using the Brand Equity Model proposed by Aaker (1991). The current work employed a sample size of 271 patients, chosen via convenience sampling, and the results demonstrated that perceived quality, brand loyalty, and brand attitude exerted a positive and significant impact on brand equity.

Hence, the above-mentioned theoretical foundations and the empirical validations of Aaker (2009; 2012); Chahal and Bala (2012); Das and Mukherjee (2016); Fong and Goh (2021); Pappu *et al.* (2006); Pappu and Quester (2008); Piaralal and Mei (2015); Shekhar Kumar *et al.* (2013); Shriedeh (2019); Tiwari *et al.* (2016); Tong and Hawley (2009); Wang *et al.* (2011) and Yoo and Donthu (2001) provides strong support for the hypothesis that PQ has a significant and positive effect on BE in various healthcare settings. The observed consistency of the PQ impact on BE across the aforementioned studies and methodologies (e.g., PLS-SEM, convenience sampling, and random sampling) strengthens the validity of the subsequent

hypothesis, suggesting that PQ functions as a principal determinant of brand equity within healthcare, and therefore it is hypothesized that:

H₁- Perceived Quality has a significant and positive effect on Overall Brand Equity

Influence of Brand Trust on Overall Brand Equity

In order to conceptualize the impact of BT on BE, the present research considered the conceptual and empirical findings of the following authors who elucidated the relationship between the two constructs. Initially, Blackston (1992), Morgan and Hunt (1994), Lassar *et al.* (1995), Chaudhuri and Holbrook (2001), Delgado-Ballester and Munuera-Alemán (2001), Ehrenberg *et al.* (2004), Rios and Riquelme (2008), Ryu and Jang (2008) and Burmann *et al.* (2009) presented BT as a factor influencing the overall brand equity and concluded that, BT is a measure of end users' integrity over the brand. Furthermore, Shekhar Kumar *et al.* (2013) developed a 41-item scale to assess the effect of BT on BE, and the data were collected from 902 patients receiving care at medical centers in Indian cities (Tier 1, 2, and 3). For hospital selection, disproportionate stratified random sampling was utilized, whereas convenience sampling was applied for patient selection and the outcomes demonstrated a significant and positive effect of BT on BE. Lastly, Kalhor *et al.* (2021) attempted to identify factors influencing the development of customer-based brand equity in hospitals. The current research was conducted with a cohort of 450 patients admitted to hospitals in Qazvin, Iran. The results demonstrated that brand trust & brand loyalty were crucial factors affecting customer-based brand equity in hospitals. Moreover, the current research concluded that both brand trust & brand loyalty exerted a significant and positive effect on customer-based brand equity.

Hence, drawing on the conceptual and empirical validations of Blackston (1992); Burmann *et al.* (2009); Chaudhuri and Holbrook (2001); Delgado-Ballester and Munuera-Alemán (2001); Ehrenberg *et al.* (2004); Kalhor *et al.* (2021); Lassar *et al.* (1995); Morgan and Hunt (1994); Rios and Riquelme (2008); Ryu and Jang (2008) and Shekhar Kumar *et al.* (2013), the current paper derived the below-given hypothesis:

H₂- Brand Trust has a significant and positive effect on Overall Brand Equity

Influence of Overall Brand Equity on Corporate Brand Image

To theorize the impact of BE on brand image, the present research utilized the findings of the subsequent authors to determine the correlation among the two constructs. Initially, in line with the theoretical foundations of Javalgi *et al.* (1994) and Ross Wooldridge *et al.* (2004), it can be inferred that; BE positively affects the hospital image. Subsequently, Kim *et al.* (2008) performed empirical research with a sample of 600 hospital patients using random sampling across five cities in Korea, including Seoul and one province. The current research investigated five factors influencing the formation of a hospital brand: trust, customer satisfaction, relationship commitment, brand loyalty and brand awareness. The results demonstrated that BE exerted a significant positive effect on brand image, indicating that healthcare marketers should prioritize strengthening BE to cultivate a favorable brand image. Furthermore, Karbalaee *et al.* (2013) performed an empirical study among 318 patients utilizing hospital services in Tehran, Iran, focusing on five constructs influencing hospital brand formation: trust, customer satisfaction, relationship commitment, brand loyalty, and brand awareness and the current research found that; BE had a significant positive effect on brand image, indicating the importance of enhancing BE to improve hospital brand image. Furthermore, an empirical research was performed by Sunarta *et al.* (2020) involving a sample of 100 outpatients from four Islamic hospitals in D. K. I. Jakarta, Indonesia, to examine the effect of brand equity on revisit intention, mediated by reputation and the findings demonstrated that brand equity exerts positive impact on both revisit intention and corporate reputation. Lastly, Cambra-Fierro *et al.*

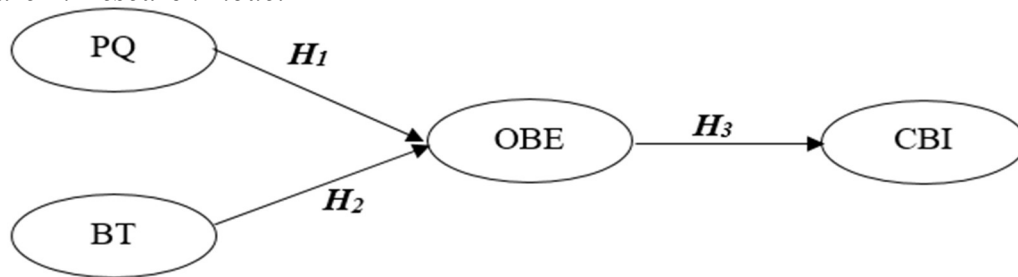
(2021) conducted an empirical investigation using a 33-item scale to assess the impact of customer-based brand equity on customer engagement, mediated by satisfaction & corporate reputation. Data was gathered through simple random sampling from approximately 300 patients attending private health clinics in the Lima metropolitan area, Peru. The study's findings indicated that: customer-based brand equity had a significant and positive effect on both customer satisfaction & corporate reputation.

Therefore, based on the conceptual findings of Javalgi *et al.* (1994) and Ross Wooldridge *et al.* (2004) and the empirical validations of Cambra-Fierro *et al.* (2021); Karbalaeei *et al.* (2013); Kim *et al.* (2008) and Sunarta *et al.* (2020), a consistent positive relationship between brand equity & brand image is evident, suggesting that a higher brand equity contributes to a stronger and a more favorable brand image. The aforementioned studies employed robust statistical techniques, such as PLS-SEM and correlation analysis, thus strengthening the reliability of the findings. While the sample sizes vary from moderate to substantial, and the sampling methods include (e.g., convenience sampling, stratified sampling, and random sampling), the overall findings remain consistent and valid within the respective study contexts and hence based on these findings, the current paper hypothesized that:

H₃- Overall Brand Equity has a significant and positive effect on Corporate Brand Image.

Therefore, considering the discussions held above, a hypothetical research model is developed and the hypotheses direction that were expected to be investigated in the current paper is illustrated in Figure 1 below:

Figure 1: Research model



Originality of research

The current paper is considered unique with respect to deriving the relationships between the brand equity dimensions & brand image within the Indian hospital segment, particularly in the Hyderabad region. Based on the literature reviewed so far, it is quite evident that only one sample has considered the South American continent (Cambra-Fierro *et al.*, 2021) whereas the majority of the papers explored the landscape of the Asian backgrounds (Chahal and Bala, 2012; Das and Mukherjee, 2016; Fong and Goh, 2021; Kalhor *et al.*, 2021; Karbalaeei *et al.*, 2013; Kim *et al.*, 2008; Piaralal and Mei, 2015; Shekhar Kumar *et al.*, 2013; Shriedeh, 2019; Sunarta *et al.*, 2020; Wang *et al.*, 2011) & within the context of Asian studies, only three papers conducted an explicit analysis of the Indian samples (Chahal and Bala, 2012; Das and Mukherjee, 2016; Shekhar Kumar *et al.*, 2013) & even among the Indian samples, none of the papers have considered the Hyderabad context thus highlighting a scarce amount of empirical research, especially within the Hyderabad setting, which investigated the effect of brand equity constructs on brand image, thereby indicating a research gap that requires thorough investigation. Although there are merely two studies in the scholarly interest of hospital branding within the Hyderabad framework (Kiran, 2020; Kondasani, 2016), both studies, however, were limited to the dimensions of destination branding, destination image, destination

brand loyalty, & perceived value, and neither have specifically focused on the effect of brand equity constructs on brand image. Therefore, the present paper strives to bring a novel addition to the prevailing literature on brand equity & brand image, by investigating the effect of brand equity on brand image in the framework of a Hyderabad corporate hospital.

Methodology

Research Design

The present study employed both qualitative and quantitative research designs, thus utilizing a mixed-method research design. To interpret the respondents' viewpoints regarding the study constructs and the relationships between those constructs, a focused group interview was undertaken which aids the researcher in gathering a detailed and an extensive set of information (Saunders, 2009). Moreover, the current research examined the inter-relationships between the study constructs; consequently, the current research design was both descriptive and explanatory in nature. As stated by Tashakkori and Teddlie (2003), employing a mixed-method research design, which involves performing interviews during the preliminary phase of questionnaire development and collection, provides the researcher with confidence in effectively tackling the utmost significant and growing challenges in the rapidly evolving business environments. The objective of explanatory design is to investigate the interrelationships between the constructs (Saunders, 2009), and in the current study, the explanatory research design determines the kind & the degree of relationships between the paper constructs & this design is especially emphasized within business & social sciences research (Yin, 2006). Finally, the current work highlights a clear picture of each construct - PQ, BT, OBE, and CBI in the Hyderabad corporate hospital framework (patients availing hospital services), and thus, it constitutes a descriptive research design (Robson, 2024).

Sample population

According to Asiamah *et al.* (2017), the accessible population is a component of the targeted population and can be taken into account through “geographic”, “time”, or “cultural characteristics” based on the suitability criteria of the study. Consequently, in accordance with the aforementioned premise, for this study, the criterion of “geographical characteristics” was considered, and the current research was limited to the geographic context of Hyderabad city, India.

Sampling hospital

The hospital magazine, namely THE WEEK-Hansa Research Best Hospitals Survey 2023 (December 2023) was utilized to identify the leading corporate brand for this study. The aforementioned brand, exhibiting the following characteristics in the specified order: cutting-edge medical devices for treatments and procedures, corporate reputation, presence of super specialty, meticulous standards of care and excellence, doctors competency, cost-effective treatment, satisfactory results, huge volumes of patient inflow, premier medical settings regarding proficient workforce, cutting edge technology and infrastructure, innovation, and environment, was designated as the selected hospital for the current study. Moreover, the defined inclusion criteria applied to the selected hospital were: a hospital accredited by the Joint Commission International, with a minimum capacity of 150 beds, and offering quaternary care services.

Sampling Method

While earlier studies have utilized both the probability (Cambra-Fierro *et al.*, 2021; Kim *et al.*, 2008; Shriedeh, 2019) and non-probability (Chahal and Bala, 2012; Das and Mukherjee, 2016; Fong and Goh, 2021; Piaralal and Mei, 2015; Shekhar Kumar *et al.*, 2013) sampling techniques; however, none of the studies have utilized the purposive sampling method, where its primary benefit lies in including participants who can provide the most insightful, rich, and

detailed data related to the research objectives, making it particularly advantageous within an exploratory research framework. In contrast to other sampling techniques that seek broad generalizability, purposive sampling enables the researcher to concentrate on subjects capable of specifically addressing the research objectives, ultimately enhancing the relevance and contextual specificity of the results. Consequently, the current research employed purposive and judgmental sampling techniques to gather data from patients and their companions who availed hospital services at the selected study hospital in Hyderabad City, India.

Sample size

Various researchers have proposed several criteria for calculating the sample size and it relies on the nature and the required data for the research. According to Grossnickle and Raskin (2002), sample size should reflect the target population and a larger sample enhances the strength of generalizability by minimizing the sampling error. The present research utilized the Structural Equation Modelling (SEM) technique for data analysis, wherein, at least 200 participants are adequate enough to validate the model through the SEM approach (Kelloway, 1998), and the total number of sample units and the items considered in the study must be in a proportion of 10:1 or higher than that (Kelloway, 1998; Nunnally and Bernstein, 1994). Since the current research has 24 items; which means that the necessary sample size must be at least 240 and according to Hair *et al.* (2006) and Sivo *et al.* (2006), a “critical sample size” of 200 is adequate enough to generate admissible statistical power for data analysis. Furthermore, the current research also considered the Hoelter’s critical number which advocates that the sample size should be more than 200 (Byrne, 2001; Garver and Mentzer, 1999; Hoelter, 1983). Therefore, based on the above sample size justifications, a total of 700 patients were considered to mitigate the human bias and nonresponse rate, in addition to demonstrating the respondents’ perceptions regarding the study constructs. Furthermore, considering the reviewed literature, sample size for a majority of the studies were in between the range of 100-650 (Cambra-Fierro *et al.*, 2021; Chahal and Bala, 2012; Das and Mukherjee, 2016; Fong and Goh, 2021; Kalhor *et al.*, 2021; Karbalaee *et al.*, 2013; Kim *et al.*, 2008; Piaralal and Mei, 2015; Shriedeh, 2019; Sunarta *et al.*, 2020; Tiwari *et al.*, 2016; Wang *et al.*, 2011) and thus for the current research, a sample size as high as 700 was considered for the generalizability of the findings. Following the data cleaning procedure according to Hair *et al.* (2006), 38 questionnaires were found to be invalid, and the left-over 662 questionnaires (response rate of 94.57%) were treated as the final sample size for data analysis & hypothesis testing.

Measurement scale

Variables assessing the research constructs were employed based on the available literature support with minor wording adaptations to align with the present study's background. Initially, the first construct, namely perceived quality, is evaluated using seven items pertinent to the "outcome quality" of the patient in relation to the brand (Chahal, 2008; Harris and Goode, 2004; Raftopoulous, 2005). The second construct, namely brand trust, was assessed using seven items that reflect respondents’ confidence in the brand’s trustworthiness (Bechtold, 2007). The third construct i.e., BE, was calculated by utilizing a four-item scale related to the brand value in the patients’ mind (Buil *et al.*, 2013; Ha *et al.*, 2010) and the final construct, namely brand image, was assessed using six items representing the brand reputation in the patients’ mind (Kim *et al.*, 2008). The questionnaire was composed of two parts, with Section A including the demographic details of the patients and Section B with the variables i.e., a 24-item scale as stated above. Following the considerations of Awang *et al.* (2016), “the researchers have to construct their questionnaire as interval scales if interested to apply the parametric test”. Hence, the current research adopted a five-point interval Likert scale characterized by response options spanning from “strongly disagree” (1) to “strongly agree” (5).

Results

Sample profile

The current work attempted to equalize the ratio of males to females, constituting 51% males & 49% females. The majority of the respondents were in the 51-60 years age category (39%). A majority of them were graduates (61%). Furthermore, 63% of the patients were working in the private segment & 71% of the patients' monthly earnings were more than Rs. 25000. Moreover, 63% of the patients utilized varied medical insurance plans, and finally, 49% of the patients utilized cardiac services, after 18% for Gastroenterology and 16% for Orthopaedic services. Table 1 below depicts the demographic profile of the sample.

Table 1: Sample characteristics (N = 662)

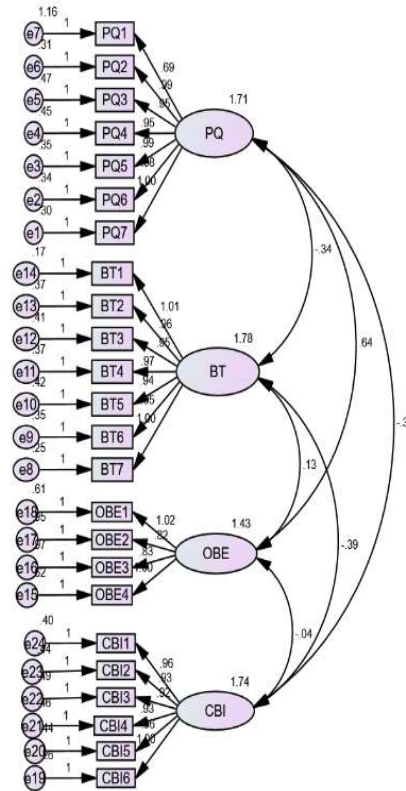
Variable	Classification	Frequency	(%)
Gender	Male	337	50.90
	Female	325	49.09
Age group (yrs)	Below 21	37	5.58
	21-30	18	2.71
	31-40	19	2.87
	41-50	143	21.60
	51-60	258	38.97
	Above 60	187	28.24
Education	Illiterate	34	5.13
	S.S.C	21	3.17
	Intermediate	66	9.96
	Graduation	403	60.87
	Post-Graduation	123	18.58
	Others	15	2.26
Occupation	Student	12	1.81
	Business	11	1.66
	Self-employed	73	11.02
	Govt employed	111	16.76
	Private sector	417	62.99
	Others	38	5.74
Monthly Income (Rs)	Below 10000	61	9.21
	10000-15000	97	14.65
	15000-25000	34	5.13
	Above 25000	470	70.99
Availed Health Insurance Policy	Yes	417	62.99
	No	245	37.00
Type of treatment	Cardiology	324	48.94
	Gastroenterology	119	17.97
	Orthopaedics	105	15.86
	ENT	38	5.74
	Urology	32	4.83
	Others	44	6.64

First-order Confirmatory Factor Analysis (CFA): Measurement Model

The current study conducted CFA for the first-order & second-order constructs of the proposed hypothetical model to evaluate the parameter estimates; and model fit indices alongside convergent validity, discriminant validity & construct reliability of the specified factors using AMOS 21v. CFA is a part of a larger family of methods called SEM and performs a vital part in measurement model validation in path/structural analysis (Brown, 2015; MacCallum and Austin, 2000). While running SEM, empiricists initially estimate the measurement model (in any case the measured items precisely reflect the desired constructs/factors) before the assessment of the structural model. According to Thompson (2004), "It makes little sense to

relate the constructs within an SEM model if the factors specified as part of the model are not worthy of further attention”. Most of the times, issues with SEM models are because of the measurement model that can be identified using CFA (Brown, 2015). Figure 2 below presents the first-order CFA of the current paper.

Figure 2: First-order CFA Model



Results of CFA

The regression estimates pertaining to every single item were found to be statistically significant at a 0.001 level of significance. According to Fornell and Larcker (1981), the standardized factor loadings must exceed 0.50, and from the below Table 2, it can be inferred that all the regression weights were falling within the range of 0.642-0.957, values which are accepted as good loadings & hence can be considered for further analysis.

Table 2: Estimates of First-order CFA

Construct	Parameter Estimates	Standardized factor loadings
Perceived Quality	PQ7 <--- PQ	0.922***
	PQ6 <--- PQ	0.909***
	PQ5 <--- PQ	0.910***
	PQ4 <--- PQ	0.880***
	PQ3 <--- PQ	0.875***
	PQ2 <--- PQ	0.919***
	PQ1 <--- PQ	0.642***
Brand Trust	BT7 <--- BT	0.937***
	BT6 <--- BT	0.907***
	BT5 <--- BT	0.888***
	BT4 <--- BT	0.904***
	BT3 <--- BT	0.892***
	BT2 <--- BT	0.904***
	BT1 <--- BT	0.957***
Overall Brand Equity	OBE4<---OBE	0.836***
	OBE3<---OBE	0.712***
	OBE2<---OBE	0.707***
	OBE1<---OBE	0.843***
Corporate Brand Image	CB16<--- CBI	0.933***
	CB15<--- CBI	0.885***
	CB14<--- CBI	0.875***
	CB13<--- CBI	0.865***
	CB12<--- CBI	0.881***
	CB11<--- CBI	0.896***

Notes: ***p<0.001

Model Fit Indices

According to Hair *et al.* (2006), the standard criterion for assessing the model fit indices comprise the estimates of the χ^2/df , GFI, RMSEA, TLI, CFI & PNFI. A model with an optimal fit should satisfy the following thresholds: <3 for χ^2/df , GFI>0.85, RMSEA<0.08, TLI>0.90, CFI>0.90 & PNFI>0.50. The results from the First-order CFA indicated that the measurement model exhibited an optimal fit with the estimates of $\chi^2/df=1.43$, GFI =0.959, RMSEA=.025, TLI=0.993, CFI=0.994 & PNFI=0.873.

To assess the convergent validity of the study constructs, the following three criteria must be satisfied:

- Construct Reliability is assessed using the cronbach's α & composite reliability, wherein the cronbach's α for each individual factor should exceed the threshold of 0.7 (Hair *et al.*, 2006), and the composite reliability must surpass the benchmark of 0.6 (Fornell and Larcker, 1981).
- Average Variance Extracted (AVE) must exceed 0.5 for each individual factor (Fornell and Larcker, 1981).
- The standardized factor loadings are required to exceed 0.50 (Fornell and Larcker, 1981).

Presented in Table 3 below are the cronbach's α values for each factor, all of which exceeded the recommended threshold of 0.70 (Hair *et al.*, 2006). For cronbach's α , an inter-item correlation analysis was conducted followed by a subsequent item-deletion to eliminate redundancy within the scale items, ultimately resulting in a 24-item scale as described above. The composite reliability for every single factor is more than the prescribed value of 0.6 (Fornell and Larcker, 1981). The AVE for all factors surpassed the minimal criterion of 0.50 (Fornell and Larcker, 1981) & the factor loadings of all items were above 0.50 as presented in

Table 2 (Fornell and Larcker, 1981) and therefore, these results indicate that each factor attained sufficient convergent validity. Discriminant validity is determined by contrasting the AVE values against the squared inter-construct correlations. As indicated in the Table 3 below, AVE values exceeded the squared inter-construct correlations, consistent with the recommended criteria for discriminant validity according to Fornell and Larcker (1981).

Table 3: Test results on Convergent & Discriminant Validity

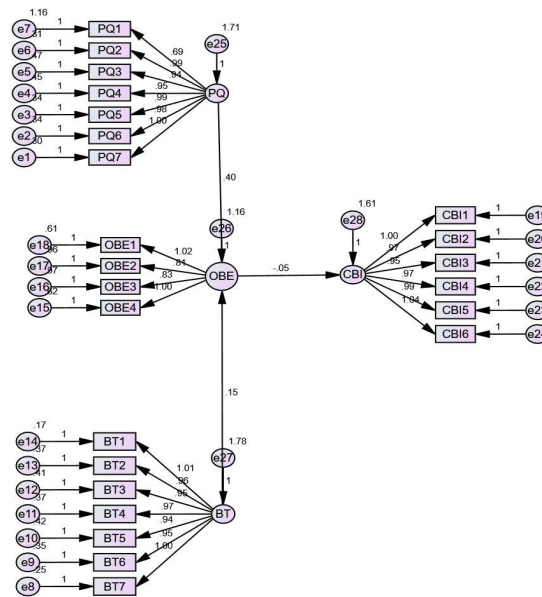
Constructs	Cronbach's α	CR	AVE	1	2	3	4
PQ	0.95	0.98	0.75	0.75			
BT	0.97	0.99	0.83	0.03	0.83		
OBE	0.85	0.92	0.60	0.16	0	0.60	
CBI	0.95	0.98	0.79	0.05	0.04	0	0.79

Notes: PQ Perceived Quality; BT = Brand Trust; OBE = Overall Brand Equity; CBI = Corporate Brand Image.

Structural model and hypothesis testing

Upon establishing convergent & discriminant validity and construct reliability, in addition to achieving the optimal fit indices of the measurement model, the current paper proceeded with hypothesis testing of the structural model by performing the second-order CFA as illustrated in below Figure 3:

Figure 3: Second-order CFA model



From the AMOS results, the structural model demonstrated an optimal fit where the $\chi^2/df=1.86$, GFI=0.948, RMSEA=0.036, TLI=0.986, CFI=0.987 & PNFI=0.877. Owing to an acceptable measurement model, the research hypotheses were tested by investigating the proposed structural model. Table 4 below presents the path coefficients for all the hypothesized paths in the model.

Table 4: Results of the hypothesized path analysis

Hypotheses	Hypothesized Path	SRW	SE	P	Result
H ₁	OBE <--- PQ	.404	.037	***	Supported
H ₂	OBE <--- BT	.146	.035	***	Supported
H ₃	CBI <--- OBE	-.049	.044	.272	Not Supported

Notes: ***p < 0.001

According to Table 4, we can identify that, the regression path betwixt PQ & OBE is statistically significant at 0.001 & positive, and therefore hypothesis H_1 is supported in the proposed model. Based on Table 4, it is obvious that the regression path amidst BT & OBE is statistically significant at 0.001 & positive and therefore hypothesis H_2 is supported in the proposed model. Lastly from Table 4, we can identify that the regression path between OBE & CBI is insignificant ($P > 0.05$) & thereby, we can conclude that hypothesis H_3 is not supported in the proposed model.

Discussions

The primary objective of the current work was to examine the relationships between the study constructs, namely PQ, BT, OBE and CBI by utilizing the SEM technique. The paper has found some crucial findings regarding the effect of brand equity constructs on brand image. From a theoretical perspective, the current research offers insights into the modern concept of customer-based brand equity and its relationship with brand image. The current paper is considered unique in the context of deriving the relationships between the brand equity constructs, OBE, and CBI within the Indian healthcare sector, specifically in a Hyderabad corporate hospital (patients receiving hospital services). Initially, to test these hypothesized relationships, as outlined in the hypothetical research model (Figure 1), the current study developed and validated appropriate scale items for each construct. The current study contributes to the existing literature by establishing the reliability and validity of the integrated measurement constructs, i.e., brand equity constructs, OBE, and CBI. Consequently, it is recommended that the integrated scales are effective in capturing patients' perceptions regarding the brand equity factors and CBI factors within hospital settings, subject to minor changes.

One of the objectives of the current research was to assess the impact of PQ on OBE within the framework of a Hyderabad Private Hospital. According to the literature reviewed, it can be inferred that; PQ has a significant effect on BE in the selected hospitals of Asian settings & amongst them, only three studies have focussed on Indian settings (Chahal and Bala, 2012; Das and Mukherjee, 2016; Shekhar Kumar *et al.*, 2013). Therefore, the current study conceptualizing the influence of PQ on BE in the Hyderabad context is been examined. The output of CFA statistics of the structural model (Table 4) demonstrated that PQ has a significant & positive effect on BE (0.404, $p < 0.001$) & this result is congruous with the findings of Aaker (2009; 2012); Chahal and Bala (2012); Das and Mukherjee (2016); Fong and Goh (2021); Pappu *et al.* (2006); Pappu and Quester (2008); Piaralal and Mei (2015); Shekhar Kumar *et al.* (2013); Shriedeh (2019); Tiwari *et al.* (2016); Tong and Hawley (2009); Wang *et al.* (2011) and Yoo and Donthu (2001). The present finding suggests that; the hospital's quality department must improve its service quality that will eventually drive a positive BE in the patients' minds.

Another objective of the present study was to determine the effect of BT on OBE in the framework of a Hyderabad private hospital. Even though very minimal works attempted to analyze the effect of BT on OBE, the impact was confined to the Asian hospital settings (Kalhor

et al., 2021; Shekhar Kumar *et al.*, 2013) and none of the samples have empirically analysed the effect of BT on OBE in the Hyderabad settings. Therefore, conceptualizing the influence of BT on OBE in the Hyderabad hospital setting is being dealt with in the current paper. The output of CFA statistics of the structural model (Table 4) found that BT has a significant & positive effect on BE (0.146, $p < 0.001$) & this result is congruous with the outcomes of Blackston (1992); Burmann *et al.* (2009); Chaudhuri and Holbrook (2001); Delgado-Ballester and Munuera-Alemán (2001); Ehrenberg *et al.* (2004); Kalhor *et al.* (2021); Lassar *et al.* (1995); Morgan and Hunt (1994); Rios and Riquelme (2008); Ryu and Jang (2008) and Shekhar Kumar *et al.* (2013). The present finding indicates that; as long as the hospitals strive to maintain their trust factor in the patients' minds, the higher will be the patients' brand equity towards the hospital.

Lastly, the current paper examined the effect of OBE on CBI within the contextual framework of a Hyderabad private hospital, and the outcomes of the CFA statistics of the structural model (Table 4) indicated that; OBE had an insignificant effect on CBI which is contradictory to the outcomes of Javalgi *et al.* (1994) and Ross Wooldridge *et al.* (2004) and the empirical validations of Cambra-Fierro *et al.* (2021); Karbalaee *et al.* (2013); Kim *et al.* (2008); Sunarta *et al.* (2020). The present finding indicates that, patients might have typically focussed more on service quality, healthcare outcomes, and personal experiences instead of considering the broader elements of brand management such as advertising or brand image campaigns related to the current brand. Furthermore, patients might have perceived the current brand more through its reputation for care (which may be linked to actual experiences and outcomes) rather than the formalized brand image created through the marketing aspects. Consequently, brand equity, which encompasses emotional and associative bonds was found to have an insignificant effect on brand image in the current paper.

Conclusions

An important significance of the current work is to analyze the relationships among the BE constructs, OBE, and brand image in a Hyderabad private hospital setting. The current research employed a robust measurement scale to assess the patients' perceptions on the current brand management constructs in a Hyderabad private hospital setting, which constitutes a unique contribution to the available BE literature within the Indian healthcare background. The results of the paper demonstrated that; PQ had a significant and positive effect on OBE; BT had a significant and positive effect on OBE and lastly, OBE had an insignificant effect on brand image in one of the Hyderabad private medical centres. The constructs investigated in the current research aims to provide a more nuanced understanding of the brand-building practices in healthcare, thereby enhancing both the practical and academic pool of knowledge. In summary, the present paper provides insights into the healthcare service BE & its dimensions. The current paper identified the two core dimensions of BE, namely PQ and BT, and highlighted that, a special focus on maintaining and strengthening these dimensions enables a hospital to position itself as a dominant market leader, thereby affecting the consumer decision behavior. Theorists should also realize that Brand Equity is a critical factor in the consumer decision-making process, particularly for those services that inherently mitigate risk (Mourad *et al.*, 2011). Consequently, researchers must draw insights from the current study to develop a comprehensive understanding of Brand Equity.

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