IMPACT OF ELECTRONIC WORD OF MOUTH AND PERCEIVED QUALITY ON BRAND EQUITY OF DIAGNOSTIC CENTRES WITH MEDIATING ROLE OF BRAND LOYALTY

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A thesis submitted in the fulfillment of therequirements for the award of the degree ofMaster of Business administration

Department of Management Sciences

BAHRIA UNIVERSITY LAHORE CAMPUS

July 2023

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I dedicate this work to my beloved parents.

ACKNOWLEDGEMENT

ABSTRACT

In countries like Pakistan health sectors are spending significant amount of their budgets on branding their hospitals, laboratories, clinics to attract patients. The purpose of this research is to highlight the significance of brand equity along with perceived quality and electronic word of mouth, in terms of brand loyalty of patients to diagnostic center, Lahore Pakistan. Our results indicate that both electronic word of mouth and perceived quality have a significant positive impact on brand equity. Moreover, brand loyalty was found to mediate the relationship between electronic word of mouth, perceived quality, and brand equity. The findings suggest that organizations in the health sector of Punjab, Pakistan should focus on improving their brand marketing practices and promoting brand loyalty to enhance brand equity. Additionally, organizations need to potray a positive electronic word of mouth that supports brand loyalty and effective quality to maximize brand equity. Sustaining the theory of self-congruity. Snowball sampling technique was adopted for the collection of data from sample size of 380 respondents. Structural Equation Modeling (SEM) technique have been used for the analysis and findings shows that electronic word of mouth and perceived quality of health sectors are the significant dimensions of brand equity and brand equity significantly impacts on perceived quality of the patients to get tested from diagnostic center and findings also shows the insignificant mediating effect of brand loyalty on the relationship between diagnostic center equity of brand and perceived quality of the patients to get tested. The outcomes of this study gave researchers, diagnostic scientists and marketers the better understanding of brand equity's importance and its key role in promoting the health sectors in country like Pakistan. This is also beneficial for the patients to choose good diagnostics laboratory for health sectors in Pakistan.

Keywords: *Electronic Word of Mouth, Perceived Quality, Brand Loyalty, Brand Equity, Smart PLS and Structural Equation Modeling*

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CHAPTER ONE

INTRODUCTION

1.1 Background

In countries like Pakistan, health institutes are investing a significant amount of money in branding their hospitals, clinics and labotaries (Jevons, 2006). Health institutes are under rising trend in their competitive environment as a result of static application numbers, increased significance of rankings, and funding constraint (Bock, Poole, & Joseph, 2014; Civera, Cattaneo, Meoli, Paleari, & Seeber, 2021). As a consequence, leading health institutions dedicatea significant amount of their budget to raise brand loyalty differentiating themselves from competitors.

However, in highly crowded areas, the brands are hardly distinguishable. Furthermore, there is still a lack of literature on branding-related factors for health institutions , and it lacks the same depth of understanding as branding for commercial products and services (Jongbloed, 2015).

This is due to the fact that health promotion has been highlighted as the most significant element in any country's socioeconomic development, and it plays an essential part in the training of skilled medical technologist, developing and spreading the understanding needed for the knowledge-oriented economy (Bailey, Cloete, & Pillay, 2011; Nyangau, 2014). Health sectors play an important role in shaping patients' personal health (Dagiliūtė, Liobikienė, & Minelgaitė, 2018).

It is important to adapt marketing strategies to the needs of patients. In other words, leading health sectors are working on commercial models, and patients of the health sectors are their customers. patients' payments for their testing fees, in this context bearing health expenses, have a greater impact on how they will work for it (Chen, 2016; Jonathan, 2008).

This study will focus on how Diagnostic centrebrand equity impacts on brand loyalty of the patients for getting tested for their better health. Diagnostic centreis ISO certified private health sector and the head department is in Lahore. It has also its branches in Islamabad, Karachi, Multan and so many other cities as well. And this Laboratory was founded in 1983 by Akhter Suhail Chughtai and since then it has developed gradually into top ranking health sectors of diagnostics in Pakistan. Diagnostic centreis a very comprehensive Lab and it offers multidimensional and diverse range of health promotion programs in the field of medical sciences, health management, nursing programs, medical Lab sciences and training programs for phlebotomist.

eWOM communication refers to any favorable or negativeremarks made by prospective, actual, and past customers about a product or a company via the Internet(Hennig-Thurau, Gwinner, Walsh, & Gremler, 2004). eWOM communication can take place in various settings. Consumers can post their opinions, comments and reviews of products on weblogs (e.g. xanga.com), discussion forums (e.g. zapak.com), review websites (e.g. Epinions.com), e-bulletin board systems, newsgroup, social networking sites (e.g. facebook.com). While eWOM communication has some characteristics in common with traditional WOM communication, it is different from traditional WOM in several dimensions. These dimensions attribute to the uniqueness of eWOM communication. First, unlike traditional WOM, eWOM communications possess unprecedented scalability and speed.

This study also ensures its contributions by highlighting the significance of brand equity and how it can be helpful for higher health sectors in Pakistan. Whenever the customer interacts with a services or products of the brand, their memory of that particular brand's distinctive influence is known as brand equity (Kotler, 2004). The model of brand equity by

D. Aaker (1991) is the most detailed and complete model obtainable and continues to serve as the foundation for brand equity research today. A meta-analysis by Tasci (2020) has once again confirmed, that despite the existence of around forty multiple CBBE elements in various contexts, the overall CBBE literature demonstrates an agreement on five CBBE components that are awareness of brand, association with the brand, perception of quality of the brand, consumer

value and loyalty with the brand. All these elements defines overall brand by the customer or consumer point of view (Tasci, 2020). Above mentioned dimensions such as (awareness of brand, association with the brand and perception of quality of brand and loyalty with the brand) are the proposed dimensions by (D. Aaker, 1991). Brand equity does not significantly influence by the other proprietary assets. Consequently, this dimension has not been used in earlier research (D. Aaker, 1991). Additionally, the dimension that is brand loyalty is mainly used to examine in the scenario of repetitive testing addresses brand loyalty as dimension of brand equity. Electronic word of mouth and different brand equity dimensions are considered in this study, which focuses on the factors that affect purchase intentions of patients, notably brand loyalty and perceived quality of health sector.

1.2 Research Gap

Laboratories' brands should be managed more like corporate brands as a result of the aforementioned difficulties (Walter, Asgari, & Cleff, 2022). Branding is indeed an Laboratories' attempt to develop a positive image with the goal of gaining positive publicity and strengthening identification so that people can identify one laboratory from another. Quantitative research on factors relating to brand like electronic word of mouth, loyalty of brand perception of quality is limited. In countries like Pakistan such as Diagnostic centre, these laboratories are spending huge amounts on their branding.

There is a lot of pressure on laboratories who are already dealing with cash flow problems. Furthermore, there is still lack of literature on branding of health institutes, and it does not yet have the same level of diagnostic services as commercially branding items or services (Civera et al. ,2021). However, we feel that examining the impact on branding-related criteria like electronic word of mouth about brands, loyalty of brand and perception of quality of testing is critical. These variables can be used to assess the brand dimensions' long-term influence. As a result, we've included them in our study.

However, previous studies has not applied these factors in the context of good health sectors (Khoshtaria, Datuashvili, & Matin, 2020). Since most previous studies

solely applied brand equity concepts to the laboratory business, this study will cover the literature on application of brand equity to diagnostic services (Tariq et al. , 2017).

1.3 Problem Statement

Diagnostic facilities for testing are becoming the major challenges for diagnosis of critical diseases. Higher diagnostic centers are spending huge amount of their budgets on branding (Walter et al., 2022). It is due to external pressures that have compelled diagnostic laboratories to adopt more competent marketing strategies (Vickers, 2017). This necessitates a better awareness of information about the sources used by new students when deciding whether or not to attend a health sector (Civera et al. , 2021)

Even after spending very significant amounts of money on branding of diagnostic centers, laboratories are still lacking in their required number of testing. So there is a need to understand that how laboratories can more efficiently create positive image for perceived quality about their offerings and how these health sectors can provide best information to the patients to attract them and to maximize patient's loyalty for testing.

Hence, electronic word of mouth about brand, loyalty with the brand and perception of quality of the brand shapes the patient's health(Walter et al., 2022). However, the focus of this study was on the dimensions of brand equity that are loyalty of brand and perception of quality of testing of Diagnostic center and the impact of brand equity on behavioral intentions of the patients for testing in Diagnostic center, Lahore Pakistan.

1.4 Research Objectives

The research's objectives are listed below after carefully reviewing the pertinent literature:

- To investigate the impact of electronic word of mouth on brand equity in health sector ofPunjab Pakistan

- To investigate the impact of perceived quality on brand equity in health sector of PunjabPakistan.

- To analyze the mediation role of brand loyalty on relationship betweenelectronic word of mouth and brand equity in health sector of Punjab Pakistan

- To analyze the mediation role of brand loyalty on relationship betweenperceived quality and brand equity in health sector of Punjab Pakistan

1.5 Research Questions

To align with the aforementioned objectives, the following research questions have beenformulated:

Q1: What is the impact of electronic word of mouth on brand equity in health sector of PunjabPakistan?

Q2: What is the impact of perceived quality on brand equity in health sector of PunjabPakistan?

Q3: Whether brand loyalty mediates the relationship between electronic word of mouth and brand equity or not?

Q4: Whether brand loyalty mediates the relationship between perceived quality and brand equity or not?

1.6 Significance

In term of branding, laboratories are facing a lot of challenges in the competition. This study will help diagnostic centers to understand about building the brand equity more efficiently and branding-related components like loyalty of brand and perception of quality of education to increase the electronic word of mouth to opt laboratory for diagnosis in Pakistan.

This study will help to understand that how to attract patients for testing by providing the relevant information and their offerings to them. This study is very beneficial for the diagnostic centers and for the patients as well. Laboratories can influence patients by building strong brand equity, similarly for patients this study is also very beneficial this will help them to choose the best laboratory based on the loyalty that laboratories have created, and by perceiving its quality will help patients to choose the laboratory for their diagnosis.

CHAPTER TWO

LITERATURE REVIEW

UNDERPINNING THEORY

2.1 Theory of Self-Congruity

Theory of Self-Congruity to be defined as it is the direct similar relation among the customer's self-perception and the user's association of given brands due to electronic word of mouth from previously tested patients (Kressmann et al., 2006). A valuable framework for comprehending and interpreting patients' loyal behavior has been proposed: self-concept. According to certain theories, customers favor goods or brands that reflect how they see or would like to perceive themselves (Landon Jr, 1974). The definition of self-perception, also known as individual's self-image, is "the entirety of an individual's ideas and feelings with reference to himself as an object." (Twenge & Campbell, 2001). Self-congruence could be seen like a logical progression of self-perception. The core premise of theory of self-congruity is that people have a tendency to choose brands or items that fit their own self-concept. According to this theory, the likelihood of purchasing a service increases as congruence increases. According to Sirgy et al. (1997) the self-congruence is the extent to which a customer's self-perception and the perception of the user of a brand are consistent.

Theory of self-congruity proposed, that loyalty in terms of behavior of the consumers is examined by matching the customer's self-concept and the value adding attributed of products and services (Sirgy, Johar, Samli, & Claiborne, 1991). Theory of self-congruity provides a deeper knowledge of self-concept by explaining and predicting certain aspects of consumer behavior(loyalty). If laboratories create a congruence between the attributed that expresses the value of brand or the value of products or services and customer's self-perception. If theory of self-congruity holds in the context of diagnostic centers then the labortaries should focus on matching their

desired factors that patients are looking for to get tested in their laboratories. Consequently, self-congruity theory could be the most beneficial and helpful in the industry of medical diagnosis. Customers frequently choose brands that fit with their personal brand identities. Therefore, patients will choose those brands or laboratories that fits according to their self-perception.

Products and services can identified as primarily objects related to psychology that represent our characteristics, aims, social patterns, and aspirations. According to Swann, Stein- Seroussi, and Giesler (1992) the congruity theory says that a brand will be more attractive if two ideas are comparable. patients will always select the services offered by the particular brands or participate with any sector that has its symbolic value system congruent the way they believe they perceive their own selves (Levy, 1959). Moreover, the two more similar concepts such as brand loyalty and customer's self-concept, will lead to the higher the preference for the brand (Boksberger, Dolnicar, Laesser, & Randle, 2011). This research study designed under the lens of this theory, as laboratories has to work on match between student's self-perception and electronic word of mouth for laboratories' loyalty.

2.2 Brand Loyalty

To consistently favor one brand over all others is to have brand loyalty . Customers' brand loyalty is something that businesses want to increase. since it costs more to get new customers

than keeping on board current clients. Additionally, a devoted consumer is more likely to recommend their preferred good or service to others. While brand loyalty can directly effect consumer behavior, it can also do so indirectly by encouraging word-of-mouth advertising.(DÜLEK & Aydin, 2020)

Adapting the concept's definition, measurement, and exploration as situations change is required for a dynamic concept. Brand loyalty serves as an example of how an idea evolves over time. The suggested definition and measuring techniques are in line with the modern era's broader standards and expectations. Prior to or throughout the early days of the internet, repeat purchases or patronage were the only ways that brand loyalty

was conceptualized. The most influential publications over time affirm the concept's multidimensionality and emphasize the significance of self-congruity(Parris & Guzmán, 2023)

Brand loyalty is described as a customer's steadfast devotion to the brand and a deep affiliation with it that is unlikely to be hurt under normal conditions. In the minds of consumers, it fosters favorable perceptions of the business and a strong desire to purchase future offerings of the same brand's goods and services. According to several studies transparency and the disclosure of a company's sustainability activities can have a favorable effect on consumer brand loyalty.(Mim, Jai, & Lee, 2022)

2.3 Brand Equity

A financial and a customer these are the two perspectives of the brand equity. The financial aspect acknowledges brand equity as a component of the company's financial position (Brasco, 1988). When a corporation buys or sells a brand, its financial worth is considered an asset of the company (Simon & Sullivan, 1993). By the consumers' viewpoint, equity of the brand is the value produced for the consumers. Equity of the brand is made up of a number of liabilities and assets (D. Aaker, 1991). According to K. Keller (1993) brand equity to be defined as, the varying impact of brand knowledge on customer reaction to the marketing of the brand. According to previous literature on brand equity, D. Aaker (1991) argues that there are 5 dimensions of brand equity such as; awareness of brand, association with the brand and perception of quality, loyalty with the brand and other proprietary assets. There is no any significance contribution to investigate the equity of the brand by the fifth dimension of brand equity that is proprietary assets. Hence, this had not been utilized in previous researches (Schmitz & Villaseñor-Román, 2018. Electronic word of mouth and two brand equity dimensions brand loyalty and perceived quality of diagnosis added in this study since it focuses on factors that affect customers' purchasing intentions. These parameters are covered later.

2.4 Electronic Word of Mouth

The Internet has enabled new forms of communication platforms that further empower both providers and consumers, allowing a vehicle for the sharing of information and opinions both from Business to Consumer, and from Consumer to Consumer. Electronic word-of-mouth (eWOM) communication refers to any positive or negative statement made by potential, actual, or former customers about a product or company, which is made available to a multitude of people and institutions via the Internet(Roy, Datta, Mukherjee, & Shrivastava, 2022)

As a result of entertainment, interactivity, trendiness, personalization, and eWOM social media and online marketing initiatives. The interactions between consumers and prospects on the internet platform have a considerable beneficial impact on brand equity.

On the online social media sites, marketers frequently start the conversation. Spend money on forums or social media sites like Facebook, Twitter, or LinkedIn to boost brand equity. In the context of the laboratory, eWOM and customer satisfaction with service performance serve as the two most important preconditions for building brand equity.(Izogo, Jayawardhena, & Karjaluoto, 2023)

The concept of Word of Mouth (WOM) was carried over into the phrase "e-WOM," which evolved alongside the growth of the internet. WOM is typically thought of and investigated as the sharing of information between individuals or between individuals who are familiar with one another(Mukhopadhyay, Pandey, & Rishi, 2023). However, there is no closeness between people in e-WOM Even when customers do not know one another, they can communicate via e-WOM to share information about the goods and services they have used. Electronic Word of Mouth refers to any claim based on favorable, unfavorable, or unfavorable experiences made by active or passive internet users regarding a good or service (through websites, social networks, messaging, and other online platforms(Mukhopadhyay et al., 2023).

Businesses offer great chances for customers to look for more trustworthy information and share their own experiences (Farzin, Sadeghi, Fattahi, & Eghbal, 2022)Businesses should take aware of the fact that customers prefer reading reviews with words as opposed to star ratings alone (YelpInc, 2021). As a result, potential customers' incentive to read other customers' statements on electronic media is based on a variety of

interests, and potential customers prefer to read coments by past customer experiences(Slamet, Prasetyo, & Azmala, 2022)

2.5 Perceived Quality of Diagnosis

Perceived quality is one of the essential dimensions of brand equity (D. Aaker, 1991). According to D. A. Aaker (1991) perceived quality to be defined as the customer's perceptions regarding the superiority and quality of product and services by comparing it from other rivalry offerings. Perception of quality is a customer's evaluation for the excellence or distinctiveness of a good or service (Zeithaml, Berry, & Parasuraman, 1988). According to previous researches perceived quality of products or services directly influences on customers intentions to purchase (Cobb-Walgren, Ruble, & Donthu, 1995). There is a difference between perceived and actual quality, Actual quality relies on the measured, verifiable for the superiority of a certain functionalities and it's attributed and can be. contrasted to a predetermined norm. Contrarily, perceived quality is a relativistic. evaluation that varies between people because it is based on consumers' subjective responses to things (Holbrook & Corfman, 1985). And it primarily depends on what people expect.

Moreover, Perceived quality of diagnosis refers to the patients psychological evaluation about the laboratories based on their perceptions about it. The characteristics of the product includes two quality signals such as intrinsic quality signals as well as extrinsic quality signal. Intrinsic signal of quality evaluates the perceived quality of the product and service, and perception of the quality increases the overall equity of the brand. So it is crucial to minimize any kind of gap among the observed and real perceptions of quality (Sanyal & Datta, 2011). Quality is a perception that depends on how each person evaluates the characteristics of a certain services. According to Herstein and Zvilling (2011) whenever managers pays attentions to the characteristics and features of the brand, quality will remain prominent among all other features.

Hence, the quality of diagnosis of Diagnostic centreis a perceived quality by the prospective   patients not the actual quality. Because the prospective patients have no any pre-defined quality standard to measure the quality of testiing without experiencing it.

2.6 Electronic Word of Mouth and Brand Equity

There are very close linkages between the concept of brand equity and social media communication in marketing activities (Nakay, 2017). In recent years, online brand communities are mostly built on a social media platform activated by various information and communication technologies (Chou, 2014). The internet has become the most popular communication channel for public and marketing facilities. However, social media marketing requires special attention and strategy building to achieve brand equity (Nakay, 2017) . It is acknowledged that the online brand community is mainly society-oriented and generally consists of communities that are engaged in trade and economic activities in traditional ways. Therefore, traditional ways of communication between brand and consumer are fast-changing through digital media because of its strong connection between customers and business (Smith, Menon, & Sivakumar, 2005). Many companies have started to adopt online brand communities and use advanced information technologies to promote and advertise their products and services to establish and increase brand equity (Chou, 2014).

Giving the better information regarding brands and the offerings of the brands to the customers who have potential to buy is the essential thing for the laboratories to pay attention on (Ansari, Ansari, Ghori, & Kazi, 2019). Hence, the customer is more aware about the brand there will be stronger the connection and trust with that brand (Buil, Martínez, & De Chernatony, 2013).

This necessitates a better way of the information sources via electronic word of mouth used by tested patients when deciding whether or not to attend a health institution (Simões & Soares, 2010). The brand loyalty of the patients to get tested in diagnostic laboratories is significant and beneficial not only for health institutions, but for all nations.

In recent research by (Susilowati & Sari, 2020) describes that eWOM about brand significantly effects on the customer's loyalty. So, if laboratories have created more awareness about them, via best information by eWOM, then there are more chances that patients are more likely to show their loyalty to choose them. There is a strong connection between them for high involvement services such as health profiles and health promotion programs offered by the laboratories with greater cost and association of risks with long. durations. Hence, based on this existed literature our first hypothesis will be

H1: Electronic word of mouth has positive impact on brand equity in diagnostic

health sector.

2.7 Impact of Perceived Quality and Brand Equity

Perceived quality has been shown as a good predictor of brand loyalty (Lepp & Gibson, 2008). The customers' view about goods or services' overall quality or excellence in relation to its intended purpose is known as perception of quality (Torres, Augusto, & Lisboa, 2015). The best way to increase a brand's perception of quality is to invest in enhancing its actual objective quality. In order to express the brand's quality, the brand must also use quality signals in marketing initiatives.

Previous studies conducted by (Boulding, Kalra, Staelin, & Zeithaml, 1993) found that perception of quality has a direct relation with loyalty of patients to purchase service and affects it in a variety of ways. As a result, perception of quality is a crucial component for building the brand equity. Hence, buyers judge brand quality based on the firm's direct encounters with the brand and collection of data from environmental elements (Gil, Andres, & Salinas, 2007; Yoo, Donthu, & Lee, 2000).

Consumer reactions might be influenced by quality of perception. Perceived quality of the services offered by the brand is studied as a costumer's evaluation of a product or service's superiority or differentiation (D. Aaker, 1991; Zeithaml et al., 1988). People's views about what they intend to do in a given situation are referred to as brands loyalty (Luarn & Lin, 2005). Previous literature described that perceived quality has significant impact on responses of consumers such as customer's loyalty for testing (Cobb- Walgren et al., 1995).

According to Gupta, Kaur, and Duggal (2020) a brand with a greater quality makes the customer's loyalty (Saleem, Ghafar, Ibrahim, Yousuf, & Ahmed, 2015). Hence, on the bases of previous literature perceived quality has significant impact on the customer's loyalty to get tested from a specific brand. The first hypothesis will be as

H2. Perceived quality of diagnosis has positive influence on Brand equity in diagnostic health sector.

2.8 EWOM and Brand Loyalty

The marketing literature provides extensive documentation of the advantages of loyal customers. Loyal consumers are more likely to spend more money more frequently, are less likely to switch to a rival, and will bring in new clients through word-of-mouth advertising. Although there is no official definition of customer loyalty, it appears that the majority of experts concur that the concept encompasses both a behavioral and an attitude dimension. Attitudinal loyalty refers to consumers' opinions on certain goods or services, whereas behavioral loyalty refers to consumers' repurchasing behavior or intent with regard to a particular brand.

In this study, brand loyalty is defined as the strongly held commitment to continuing to purchase the brand, focusing on these two viewpoints perceived Quality and Brand Loyalty (Parris & Guzmán, 2023).

EWOM's scope is influenced by how users of social media share and publish content about their interactions with brands. Online reviews and/or ratings, which are a major source of WOM, have a significant impact on consumers and serve as a major compass for them to be loyal with that specific brand .A brand's reputation may suffer greatly if bad exogenous EWOM spreads on social media. Positive reinforcement has been shown to be effective for developing repeat purchasing(Malarvizhi, Al Mamun, Jayashree, Naznen, & Abir, 2022)

Electronic word-of-mouth is the ongoing and dynamic information exchange of opinions between prospective, current, or past consumers regarding a company, a product, or a service that is made online accessible to a wide range of people and organizations. Studies have shown that brand activities that are open and socially conscious impact consumer attachment, trust, and identity which make them loyal. EWOM were found to be significantly impacted by messaging about sustainability. Additionally, eWOM can benefit from high-quality relationships in terms of loyalty of patients in diagnostic field.(Mim et al., 2022)

So, electronic word of mouth has significant impact on patient's loyalty in diagnostic health sector.

H3. Brand loyalty positively mediate relationship between EWOM and Brand

Equity in diagnostic health sector.

2.9 Perceived Quality and Brand Loyalty

A product or service's ability to perform its intended function better than competing products. Customers' perceptions are an evaluation, which varies from one customer to the next.Quality perception can be objective. The customer's opinion of the qualities they value most may be the cause. By making an effort to determine the quality aspects that customers (target market segments) value most and basing quality perceptions on the key brand attributes, a favorable perception of quality can be created. Several factors can be used to determine the dimensions of brand quality.(Supiyandi, Hastjarjo, & Slamet, 2022)

One of the most frequently used ideas in marketing, brand loyalty is valued for a variety of reasons by practitioners and diagnosis. Positive purchasing habits and a favorable attitude toward the brand are essential components of brand loyalty. Brand loyalty is a conditional response to a product resulting from a favorable opinion of a brand. Recent research on brand loyalty have increasingly embraced an integrated approach (brand experience, perceived quality, e-wom, etc.), whereas earlier studies on loyalty concentrated on elements like perceived value, brand trust, and customer satisfaction(Eslami, 2020)

The definition of perceived quality is the consumer's assessment of the superiority or perfection of a company with a reputation built on individual opinions. Customers are drawn to high-grade brands' items because they are of high quality.(Joshi & Garg, 2021)

and make it possible for the brand to stand out from the competition. Consumer perceptions of a product's perceived quality rather than an objective measurement of its functionality or manufacturing quality are used to determine perceived quality. It also enables conveying the high price for a high-quality product while fostering a strong brand reputation.

Consumers' perceptions of a product's or service's dependability are

fundamentally what constitute perceived quality in terms of consumer brand loyalty, which is strongly related (Akoglu & Özbek, 2022)

H4. Brand loyalty positively mediate relationship between Perceived Qualty and Brand Equity in diagnostic health sector.

RESEARCH MODEL
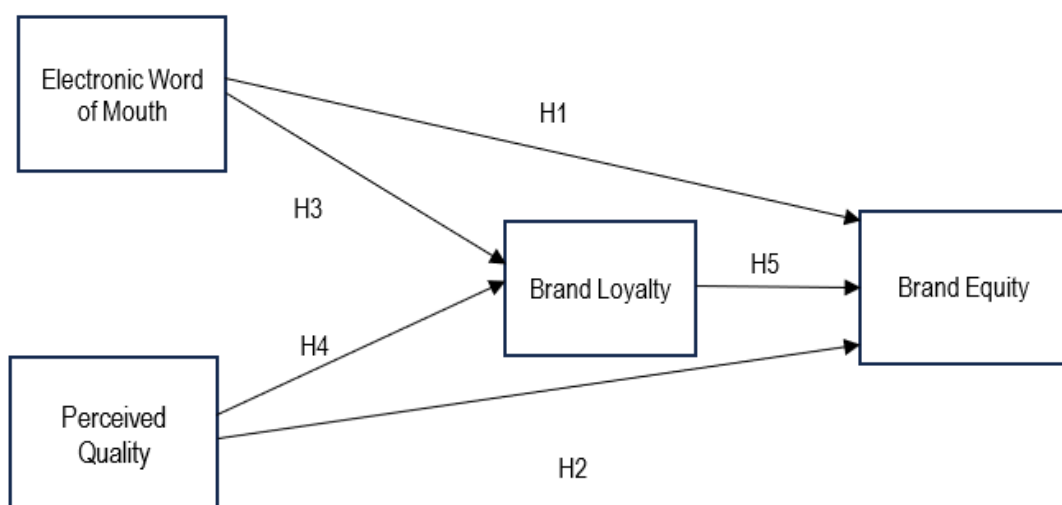
Figure 2.1: Hypothesized Research Framework

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This study aimed to understand the influence of customer based brand equity on patient's loyalty to get tested repeatedly. A proposed research model (Figure 1) is empirically examined to see if it can achieve the study's research objective. This chapter covers the methods and procedures used to test the perceived conceptual model of this undergoing research. The procedure for gathering data and statistical methods are also covered in this chapter.

Before conducting this study it is very important to prepare the appropriate methodology for the research. A research technique encompasses all aspects of the research process, from conceptual frameworks to collecting data and analysis (Rahi, 2017). This sections describes the research methodology following by the steps of research onion model introduced by (Saunders, Lewis, & Thornhill, 2009). Research philosophy can be effectively designed in this way. The researcher should use this design by moving from the outer to the inner layer. Six layers are given in research onion by Saunders et al. (2009), research philosophy, approach, strategy, choice, and time horizon and techniques of data analysis and data collection procedures.

3.1.1 Research Philosophy

For appropriate research there is needs to be established the vibrant philosophy of research. Additionally, this philosophical research will not change and cannot be altered. (Creswell & Creswell, 2017).

Philosophy of positivism is adopted in this study. This theory of positivism comprises

the research questions that can be analyzed. According to this concept, social observation and physical phenomena can both be studied in the same way because they are connected with each other. In this study, the researcher begins with a theory, develops a hypothesis to test, and then gathers data to show whether or not the hypothesis is correct. For data collection quantitative methods follows in this philosophy.

3.1.2 Research Approach

Two kinds of research approaches are; Deductive approach and Inductive approach. Firstly, it comes deductive approach is often referred to as testing theory. In this method, a hypothesis or theory is developed, and a strategy for the research is created to test the theory. Second type of approach is inductive approach, also known as creating the theory, begins with data collection before moving on to theory development.

Deductive approach is used in this undergoing research. Hypothesis for this study are developed based on the already existed theories. This strategy was chosen because it adheres to the positivist philosophy and enables the development of hypotheses and statistical analysis of anticipated outcomes. (Snieder & Larner, 2009)

3.1.3 Research Strategy

Research strategy is the third layer of research onion after philosophy and approach. In this part of study there are different methods and strategies that can be used to respond the research question of this study. Such as actions, research experiments, ethnography, grounded theory and case study are the multiple ways can used for testing the research questions (Saunders et al., 2009). This layer refers to the researcher's purpose of carrying out this study (Saunders, Lewis, & Thornhill, 2012).

Research purposes are of three types; exploratory, explanatory and descriptive, and any type of strategy can be used for any of these reasons. In this study survey strategy

is being used, It is a very conventional, proactive, and extensively research strategy in business and management. This survey strategy answers the questions like who, what, why and how questions. This survey strategy is basically interlinked with deductive approach. Using a questionnaire, this strategy enables researchers to gather data from a huge population. Additionally, it is widely used in marketing research. It is a very formal and organized method of gathering demographic data. (Saunders et al., 2009).

3.1.4 Research Choice

Choice of research is the fourth layer after philosophy, approach, and strategy. The decision is based on what kind of data is appropriate for the research. It can be mixed, qualitative, or quantitative. The focuses on quantitative approach was used for the current study.

3.1.5 Time Horizon

Time horizon is the fifth layer of research onion after philosophy, approach, strategy and choice. It might be longitudinal or cross-sectional. Cross-sectional research is conducted to investigate a particular problem at a particular time. Surveys or case studies are more likely to use in this technique. On the other side, longitudinal research occurs when solving a problem requires gathering data over a long span of time. Due to the timing of research on aspecific phenomenon, the current study was cross-sectional.

3.1.6 Data Collection Techniques

Techniques of collecting data and the procedure for analysis the data is the sixth stage of research onion. This layer explains how the data is collected and how it will be analyzed, sources of data, sample, the unit of analysis, techniques of sampling, size of sample,techniques of data collection and procedure for data analysis.

3.1.6.1 Unit of Analysis

The first step in data analysis is defining the unit of analysis (Trochim, Marcus, Mâsse, Moser, & Weld, 2008). It can be an individual or object that serves as the source for data collection. In this part of study the focus was on the impact of customer based brand equity on behavioral intentions of the students to get enroll for higher education. Data was gathered from the patients of Chughtai laboratory, Jinnah and General hospitals in Lahore, Pakistan.

3.1.6.2 Population, Sampling, and Sampling Technique

The patients who were recently admitted in hospitals were the target population for our study. Through potential patients, we gauge customer-based brand equity of Diagnostic centreand its influence to the patients for getting test for their blood diagnosis.

More than 100000 patients were admitted in Jinnah and general hospital in 2022, according to the Punjab health commission authority (PHC) Lahore. Based on predictions from the previous year, patients who get tested for their basic health profile diagnosis also took appointments and got tested. Some of them had already get diagnostic tests, while some were waiting for appointments for testing.

For the year 2023, the majority of laboratories offered health profile testing based on patients existing disease results, which meant that patients who had tested previously positive with certain diseases are targets for future diagnosis. According to (Krejcie & Morgan, 1970) the minimum samples size for this study was 384 but data was gathered from 405 patients in total from those who have tested positive previous year. There is a reason of data collection from patients of Lahore, because Lahore is one the pioneering city of Pakistan and most of the patients from other areas come to Lahore for their medical treatments in hospitals located in Lahore for their diagnosis.

For the study, to minimize the occurrence of biasness a snowball sampling method (the probability sampling method) was adopted. And data was collected by

snowball sampling technique.

3.1.6.3 Measurement and Instrumentation

The scales used in this study were modified from earlier (pre-tested) measures created by other researchers. However, there some adaptions have been made because the scale have been used for the environment of branding the commercial products (for example goods for consumers and consumer services) but not for the environment of medical diagnosis. Based on the variables used such as CBBE through these dimensions by (D. Aaker, 1991) e.g. Brand loyalty Perceived Quality of diagnosis and patients' loyalty to get test the scales added and in the questionnaire.

And the questionnaire consisted these items distributed among the students of our target population. The questionnaire is consisting on 13 items and have been divided into two sections.First, sections contain 5 questions on the demographical profile of the participants such as age, respondent's gender, income, occupation and education level. Second part comprises 9 items in which measurement scale of electronic word of mouth contains 3 items, perceived quality of diagnosis contains 3 items, loyalty with brand for repeat testing contains 3 items.

There is a total of three scales of measurement that have been adapted for the study namely EWOM,BL, perceived quality of diagnosis to tested and to measure these variables five-point Likert scale has been used ranging from 1-5 in which 1 represents strongly disagree, 2 represents disagree, 3 was for the representation of neutral, 4 representsagree and 5 is the representation of strongly agree.

To measure EWOM a scale consists on 3 items adapted from (Tong & Hawley, 2009). To measure the brand loyaltya scale consists on 3 items adapted from (Tong & Hawley, 2009), and scale to measure perceived quality of education consisted 3 items adapted from (Tong & Hawley, 2009) with small changes for the context of higher education.

The measures of above mentioned variables five point Likert scale utilized ranging from 1-5 from strongly disagree to strongly agree which encourages the participants of this study to show his level of agree or disagree of each given item.

3.1.6.4 Data Collection Procedure

For the collection of data, contacted multiple patients through their medical centers where patients came for their examination or tests in laboratories. After contacted with patients, questionnaire distributed in their respective social groups. Email has also been given in the questionnaire for any additional information or any query regarding study.

3.1.6.5 Data Analysis Techniques

Statistical Package for Social Sciences (SPSS) ver. 25 have been used for the descriptive analysis. For Structural Educational Modeling (SEM), Smart PLS 4 have been used for the analysis of data. There are two stages of performing the data analysis. At first stage, to check the data validity and reliability measurement model evaluation have been performed. In second part of analysis of data, to examine the proposed hypothesis structural model and pathcoefficient have been performed.

CHAPTER 4

DATA ANALYSIS

This Chapter covers the data analysis and results section which is collected from the patients admitted in hospitals in Lahore, Punjab Pakistan. The simple size was 385 but data was gathered from 405 patients in total from those who have tested positive previous year, out of which 385 are finalized for the analysis.

4.1 Descriptive Statistics

Descriptive statistics is used to categories the variables based on respondents' answers. I have performed the descriptive statistics test on the variables to check their mean, mode, median, standard deviation, minimum, maximum, variances etc.

Table 4.1 *Descriptive Statistics*

Name	median	Missing	Mean	median	min	max
Gender	3	0	1.079	1	1	2
Age (Years)	4	0	2.377	2	1	4
Education	5	0	1.503	1	1	3
Occupation	6	0	2.702	3	1	5

4.1.1 Frequency Tables & Graphs

Demographical analysis is important to know about the participants. Through demographical analysis characteristics of the participants checked. Total of 385 respondents were finalized after the data screening process. Demographic questionnaire section consists of five questions. The outcomes of demographical analysis were given below.

4.1.2 Gender

Table 4.3 shows the segregation of the participants of this study gender wise. Total population was of 385, and it has been divided into two categories such as male and female. The gender distribution table represents that the most of the respondents was male that is 50.9 percent. While rest of the participants were female having percentage of 49.1 in total. Based on this descriptive analysis both genders male and female are approximately equal in total.

Table 4.3: *Gender Statistics*

Category	F	percent	valid percent	cumulative percent
Male	196	50.9	50.9	50.9
Female	189	49.1	49.1	100
Total	385	100	100	

4.1.3 Last Diagnosis

Table no 4.4 shows the qualification of the participants of this study. Qualification of the participants has been divided into three categories. Such as intermediate, A-Levels and Diploma of Associate Engineering DAE. Almost all the participants' education level was intermediate which means that the last degree of all the respondents was intermediate.

Table 4.4: *Last Degree*

Category	f	percent	valid percent	cumulative percent
Basic screening	380	100	100	100

4.1.4 Occupation

Table no 4.5 describes the occupation of the patients of our research. Occupation was categorized into 3 categories such as patient, Employee and Both. The total of 380 respondents 332 participants were patients at general and Jinnah hospital and 48 was both that is student and employee. There are percentages are as 87.27 % and 12.73 % respectively.

Table 4.5: Occupation

Category	F	percent	valid percent	cumulative percent
Patients	332	87.27	87.27	87.27
Both	48	12.73	12.73	100.0
Total	380	100.0	100.0	

4.1.5 Age

Table 4.6 described the age of the participants. The respondents' age has been categorized into 4 categories. Out of 380 respondents 92 was of below 18, 278 was in between the rangeof 18 years old to 23, 10 of the respondents was in between 24 years to 29. There percentages are mentioned in the table.

Table 4.6: Age

Category	F	percent	valid percent	cumulative percent
Below 18	92	24.9	24.9	24.9
18 – 23	278	72.46	72.46	97.36
24 – 29	10	2.64	2.64	100.0
Total	380	100.0	100.0	

4.1.6 Income

Table no 4.7 represents the family income of the participants of this research. Family income has been divided into four sections. And the income statistics of the respondents are out of 380 respondents 79 respondents' income if in between 15000 to 30000, 55 respondents' family income was in between 31000 to 45000, 115 respondents family income comes in between 46000 to 60000 and 131 out of 380 respondents' family income range is above 60000.

Table 4.7: *Family Income*

Category	F	Percent	Valid Percent	Cumulative Percent
15000 - 30000	79	21.3	21.3	21.3
31000 - 45000	55	14.8	14.8	36.1
46000 - 60000	115	30.1	30.1	66.2
Above 60000	131	33.8	33.8	100.0
Total	380	100.0	100.0	

4.2 Partial Least Square – Structural Equation modeling

In this study, the quantitative hypothesis was analyzed using partial least square - structural equation modeling (PLS-SEM) method. The updated version of PLS-SEM was utilized, which is known to produce unbiased estimates of the parameters. Compared to other modeling methods like AMOS or LISREL, PLS-SEM is considered more suitable for producing balanced estimates. Because of its validity and reliability methodologies and powerful statistical approaches, the utilization of SEM application has expanded (Hair Jr, Matthews, Matthews, & Sarstedt, 2017). It can measure the relationships between multiple dependent and independent variables simultaneously that is why it is widely used in social sciences. This section provides a comprehensive overview of various measures of PLS-SEM techniques used in the evaluation, along with the empirical results. Validity and reliability analyses were performed to examine the properties of the measurement model.

4.2.1 Reliability Analysis

Reliability of the constructs represents that the measurement instrument is consistent and stable. Value of Cronbach's alpha and composite reliability are the two most commonly methods used to measure the reliability and the recommended criteria by says that the value of cronbach's alpha and composite reliability should be equal or above from 0.70. All the values mentioned in the table 4.12 are above the recommended value. So, it shows that constructs are reliable.

Table 4.8 Reliability Analysis

Construct	Cronbach's Alpha	Composite Reliability
EWOM	0.814	0.877
PQD	0.845	0.906
BL	0.861	0.900
BE	0.884	0.893

4.2.2 Validity Analysis

4.2.2.1 Convergent validity

As per Campbell and Fiske (1959), Convergent Validity is the level of confidence we have that attribute is well calculated by its indicators. The standard of Fornell-Larcker (1981) has been usually used to evaluate the degree of shared variance between the different latent variables of the model. AVE evaluates the level of differences gained by a construct versus the level due to measurement error, values above 0.7 are considered very good, whereas the level of 0.5 is acceptable. (Hair et al., 2009). All the values given in table 4.3 are greater than 0.50 which is the recommended value for AVE.

Table 4.9 Convergent Validity

Construct	Average Variance Extracted(AVE)
EWOM	0.641
PQD	0.763
BL	0.643
BE	0.567

4.2.2.2 Discriminant validity

Discriminant validity is the extent to which measures of different behaviors are unrelated. There are two different methods by which the discriminant validity can be measured, the first method is known as Heterotrait-monotrait ration criteria and then second method is called as Fornell-Larcker Criteria. For this study I have use only the Fornell-Larcker Criteria.

Discriminant validity can be measured by comparing the amount of the variationtake by the construct and the shared variation with other constructs. Thus, the levels of squareroot of the AVE for each construct should be more than the correlation involving the constructs.

Table 4.10 Discriminant Validity

	EWOM	PQD	BL	BE
EWOM	**0.801**			
PQD	0.186	**0.874**		
BL	0.173	0.346	**0.802**	
BE	0.186	0.753	0.496	**0.822**

Note: Diagonal Values refers to square root of AVE

4.3 Confirmatory Factor Analysis

Confirmatory Factor Analysis is evaluated on Smart PLS in which factor loading on eachconstruct is observed and evaluated. This analysis tells the portion of the variable that canbe retained and that can be excluded in further testing. For an established items, the factorloading for every item of the constructs should be greater than 0.71 considered to be as excellent (Fornell, 1985). Below table shows that all the highlighted loading values of the indicators are above 0.71, which is the recommended value of threshold.

Table 4.11 Confirmatory Factor Analysis

	EWOM	PQD	BL	BE
EWOM1	0.626	0.084	0.042	**0.071**
EWOM2	0.787	0.131	0.099	**0.127**
EWOM3	0.835	0.212	0.171	**0.213**
PQD1	0.775	0.171	0.155	**0.169**
PQD2	0.856	0.173	0.127	**0.183**
PQD3	0.789	0.108	0.162	**0.124**
BL1	0.507	0.094	0.074	**0.047**
BL2	0.879	0.137	0.170	**0.142**
BL3	0.755	0.055	0.110	**0.073**
BE1	0.087	0.747	0.305	**0.577**
BE2	0.113	0.713	0.197	**0.464**
BE3	**0.203**	**0.710**	**0.295**	**0.669**

4.4 Collinearity Analysis

The factor Variance Inflation evaluates the difference of increase in the regression coefficient, it is used to determine the collinearity in the tool Smart PLS. Variance Inflation factor value of 1.0 shows that the factors are not correlated. The table given below shows the Collinearity of all the items. When the value of Variance Inflation factor is in between 5 and 10 then these values show a very high correlation that mayberejected.

Table 4.12 *Collinearity Analysis*

Construct	Items	VIF
Electronic Word Of Mouth	Electronic Word Of Mouth 1	1.866
	Electronic Word Of Mouth 2	2.111
	Electronic Word Of Mouth 3	1.987
Perceived Quality	Perceived Quality 1	1.504
	Perceived Quality 2	2.142
	Perceived Quality 3	1.860
Brand Loyalty	Brand loyalty 1	1.560
	Brand loyalty 2	2.398
	Brand loyalty 3	2.562
	Brand equity 1	2.347
Brand Equity	Brand equity 2	2.798
	Brand equity 3	1.850

4.5 Assessment of Structural Model

The structural model specifies the path hypothesized in the research framework. A structural model can be evaluated by using the values of R^2.

4.5.1 Value of Coefficient of Determination

R^2 value of dependent variable determines the strength of each structural path and srength of each path to calculate the goodness of the model. The value of R^2 should be equal to orgreater than 0.

Table 4.13 *Value of R²*

Construct	R^2
BIE	0.586

The result in the above table shows that all the values of dependent variable are greaterthan 0.1 so predictive capability is determined.

4.5.2 Hypotheses Testing

To examine the bootstrapping is perform in the Smart PLS. The table given below showsthe Path coefficient values, P and T values for each.

H1: Electronic word of mouth has positive impact on brand equity in diagnostic health sector. **(EWOM ->BE)**

So, the calculation given below shows that **β=0.832, T=15.194** and **P<0.001** which is less than **0.05** so this indicates that path is significant and relation between the BE and EWOM is valid. Hence H1 was supported.

H2: Perceived Quality has positive impact on brand equity in diagnostic health sector. **(PQ ->BE)**

H2 evaluates that whether perceived quality increases the brand equity. So, the calculation given below shows that **β=0.894 T=50.47** and **P<0.001** which is less than **0.05** so this indicates that path is significant. Therefore, it is concluded that H2 is supported.

H5: Brand loyalty has positive impact on brand equity in diagnostic health sector. **(PQ ->BE)**

H2 evaluates that whether brand loyalty increases the brand equity. So, the calculation given below shows that **β=0.931 T=81.47** and **P<0.001** which is less than **0.05** so this indicates that path is significant. Therefore, it is concluded that H2 is supported.

Table 4.14 Calculation of Hypotheses

	B Coefficient	Standard Deviation	T Statistics	P Values	Interpretation
EWOM ->BE	0.832	0.037	15.194	0.000	Significant
PQ ->BE	0.894	0.038	50.47	0.000	Significant
BL ->BE	0.931	0.037	81.427	0.000	Significant

4.5.3 Mediation Analysis

H3: "Brand loyalty positively mediate relationship between EWOM and Brand Equity in diagnostic health sector." (EWOM -> BL -> BE)

Intervention examination was performed to survey the interceding job of BL in the connection between EWOM and Undertaking a positive outcome. The outcomes see table (4.9) uncovered a huge circuitous impact of EWOM on BE through BL (H3: β=0.439 T=5.873 and P<0.001). The all out impact of EWOM on BE was critical (β=0.434 T= 5.676 and P<0.001) with the consideration of arbiter the impact of BE on BL was as yet huge (β=0.286 T= 4.668 and P<0.001). This shows a reciprocal fractional intervening job of BL in connection among EWOM and BE. Subsequently H3 was upheld.

Table 4.15 Mediation Analysis 1

	Coefficient	T Value	P-Value	Interpretation
"Total Effect (EWOM->BE)"	0.434	5.676	0.000	Significant
"Direct effect (EWOM ->BE)"	0.286	4.668	0.000	Significant
"Indirect effect of EWOM on BE (EWOM -> BL -> BE)"	0.439	5.873	0.000	Significant

H4: "Brand loyalty positively mediate relationship between Perceived Qualty and Brand Equity in   diagnostic health sector." **(PL -> BL -> BE)**

Intervention examination was performed to survey the interceding job of BL in the connection between PL and BE undertaking a positive outcome. The outcomes see table (4.10) uncovered a huge circuitous impact of PL on BE through BL (H3: β=0.478 T=5.454 and P<0.001). The all out impact of PL on BE was critical (β=0.289 T= 4.878 and P<0.001) with the consideration of arbiter the impact of BE on BL was as yet huge (β=0.439 T= 5.766 and P<0.001). This shows a reciprocal fractional intervening job of BL in connection among PL and BE. Hence the hypothesis which we made as H4 is proved.

Table 4.16 *Mediation Analysis 2*

	Coefficient	T Value	P-Value	Interpretation
"Total Effect (PL->BE)"	0.478	5.454	0.000	Significant
"Direct effect (PL ->BE)"	0.289	4.878	0.000	Significant
"Indirect effect of PL on BE (PL -> BL -> BE)"	0.439	5.766	0.000	Significant

CHAPTER FIVE

DISUSSIONS AND RECOMMENDATION

5.1 Discussion on Research Finding

In countries like Pakistan health sectors are spending significant amount of their budgets on branding their hospitals, laboratories, clinics to attract patients. The purpose of this research isto highlight thesignificance of brand equity along with perceived quality and electronic word of mouth, in terms of brand loyalty of patients to different hospitals and laboratories in Lahore, Pakistan.

The complete study is based on four variables and the stated hypotheses established from the literature. This study **H1:** 'Electronic word of mouth has positive impact on brand equity in diagnostic health sector **(EWOM ->BE)**' was tested and satisfactory results of statistical analysis have produced due to which this is accepted. Findings that supported our first hypothesis are consistent with the findings of (Samadi, Ghanbarzad, & Sheykhaghaee, 2017) and (Dissabandara, 2020).

Our next hypothesis **H2:** "Perceived Quality has positive impact on brand equity in diagnostic health sector. **(PQ ->BE)**" was also proved to have positive connection between brand equity and PQ. In a variety of industries, it has been demonstrated that perceived quality improves Brand equity. The following are some studies that show how BE is influenced by PQ. A concentrate by Gupta et al. (2020) looked into how BE was affected by PQ. The study found that brand equity, including performance, was positively influenced by perceived quality. The researchers hypothesized that improved brand equity could be achieved in the health sector by cultivating a good quality in work practices. This study found a significant relationship between PQ and BE, and the analysis yielded satisfactory results, so it is accepted.

As we formulated the following hypothesis in our starting chapter that , **H3** "Brand loyalty positively mediate relationship between EWOM and Brand Equity in diagnostic health sector". H3 is used to figure out how BL acts as a mediator between EWOM and BE. According to Owens and Hekman's (2016) study, people in a variety of industries were positively influenced by brand loyalty when it came to word of mouth. The testing of the mediating effect of BL revealed satisfactory results, so it is accepted. The conclusion demonstrates that BE is significantly influenced by BL. When a business, a product, or a service is made available online to a wide variety of individuals and organisations, electronic word-of-mouth refers to the continual and dynamic information exchange of ideas between potential, present, or previous customers. According to studies, brand actions that are transparent and socially responsible have an influence on the attachment, trust, and loyalty of consumers. EWOM were shown to be strongly effected by sustainability message. High-quality connections can also assist eWOM in terms of patient loyalty in the diagnostic profession.(Mim et al. , 2022)

H4: "Brand loyalty positively mediate relationship between Perceived Qualty and Brand Equity in diagnostic health sector". The effect of brand loyality as a mediator between quality and brand equity was examined using H4. Representatives having creative ways of behaving with quality are generally in endeavors to upgrade the meaning of work and this sort of conduct emphatically affects working execution that prompts accomplish objectives effectively (Joshi & Garg, 2021). Brand loyalty is a constrained reaction to a product brought on by a positive brand perception. While early studies on brand loyalty focused on factors like perceived value, brand trust, and customer satisfaction, more recent research on brand loyalty has increasingly adopted an integrated approach (brand experience, perceived quality, e-wom, etc.). (Eslami, 2020)

The mediating effect of BL has been tested in this study, and the results of the analysis show that they are satisfactory, so they are accepted. PQ and BE are significantly correlated with BL. And result shows that mediation exists between them.

Table 5.1 Summary of Hypothesis Results

H1	**H1:** Electronic word of mouth has positive impact on brand equity in diagnostic health sector.	Supported
H2	**H2.** Perceived quality of diagnosis has positive influence on	Supported

	Brand equity in diagnostic health sector.	
H3	**H3.** Brand loyalty positively mediate relationship between EWOM and Brand Equity in diagnostic health sector.	Supported
H4	**H4.** Brand loyalty positively mediate relationship between Perceived Quality and Brand Loyalty in diagnostic health sector.	Supported

5.2 Implications

The purpose of this study is to highlight the significance of brand equity and how it may help the diagnostic sector in Pakistan grow and develop. In order to do this, a conceptual model was created that included potential factors found after a thorough analysis of the previous relevant studies. Results of this study shows that brand equity of Diagnostic centre significantly influences the patients' loyalty for getting tested again and again, Lahore Pakistan. However EWOM is an important way of spread of information, BL and PQ of diagnosis are the significant dimensions of brand equity of Diagnostic centrein terms of availing services to get tested for their medical diagnosis at Diagnostic centre, Lahore Pakistan. After the analysis on smart PLS the results of analysis represents that loyalty is an insignificant mediator for the relationship of brand equity of Diagnostic centre to gettesting for medical diagnosis at Diagnostic centre. We will explain some implications in next sections to check where and how this research can be implied.

5.2.1 Theoretical Implications

Our research which we have done on the topic of brand equity, brand loyality and word of mouth in healthcare sector can contributes to the knowledge on brand equity and how it affects patient loyalty in the diagnostic industry, particularly in Pakistan.

In the healthcare industry, brand loyalty and perceived service quality are

considered as important brand equity factors which can also be applied to other industries. The discovery that loyalty plays a substantial mediating role in the link between brand equity and patients' choices could encourage more study into additional variables that affect patient action.

5.2.2 Practical Implications

Practical implication of this research can be in Pakistan's diagnostic industry, where brand equity is important, as the research emphasises. For medical centres to attract in and keep devoted clients, medical centres and diagnostic labs nationwide should spend in establishing a strong brand equity. This can be accomplished in a number of ways, including through the supply of high-quality services, the promotion of great patient experiences, and the upkeep of a solid reputation. In short Diagnostic laboratories in Pakistan, including Chughtai's laboratory, should focus on improving their brand equity by enhancing brand loyalty and perceived service quality to attract more patients and foster customer loyalty. Our research also discussed the significance of Electronic Word-of-Mouth (EWOM) in spreading information about diagnostic services. Diagnostic facilities should pay attention to managing their online presence and encourage satisfied patients to share their positive experiences on social media and other platforms. Positive EWOM can significantly contribute to the reputation and brand image of the diagnostic facility.

5.3 Limitations

Some limitations in this thesis does exists and are as follows; Firstly, the thesis work focuses only on healthcare sector, so the findings may not be generalizable to projects in other industries. It would be interesting to explore the impact of perceived quality and word of mouth on brand equity in other sectors to make a comparison.

Second limitation can be its specificity of geographical location. The study is conducted in the Lahore region, and its findings may not be applicable to other

geographic regions or countries due to differences in rules and regulations. It is limited to one geographic region, and the results may not be generalizable to other regions or countries. The study's focus on Pakistan's health sector may make it harder to apply its findings to other contexts or industries. The cross-sectional design of the study makes it difficult to establish causal relationships between the variables. In the health sector, the impact of brand loyalty on brand equity may have been more clearly demonstrated with a longitudinal study design.

Third limitation for this study was only two dimensions of brand equity were studied that is BL and PQ_Diag. Potential confounding variables, such as project complexity or size, were not controlled for in the study. The relationship between EWOM and brand equity may have been influenced by these variables. Future studies can focus on all the dimensions of brand equity including the brand awareness and brand association in it.

5.4 Future Recommendations

In order to enhance the generalizability of the study, future research could be conducted to compare the impact of electronic word of mouth, brand loyalty, and perceived quality on brand equity across different regions or sectors in Pakistan and comparative analysis can be conducted to compare results. This is cross-sectional study but future study should use longitudinal design. In this research we have used brand loyalty as mediator, which can be used as moderator in future research with same base elements. In future other dimensions of brand equity can be added to enhance the research model. Future research should compare the impact of marketing styles on brand equity in the health industry of Pakistan.

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