*International Journal of Business Marketing and Management (IJBMM)*
*Volume 2 Issue 3 March 2017, P.P.39-59*
*ISSN : 2456-4559*
*www.ijbmm.com*

# Direct Roles of Service Quality and Indirect (Moderating) Roles of PerceivedValue on the Level of Patient Satisfaction: From the Perception ofPatient of Private Hospitals in Tripoli, Libya:SPSS and PLS Approach

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***ABSTRACT:*** *This quantitative study aimed to examine the moderating effect of monetary (price) and non-monetary (time and efforts) perceived value on the relationship between five dimensions of service quality (environment and technology, convenience of care process, responsiveness, trust and security, and respect and caring) and patient satisfaction in the health care environment in Private Hospitals in Tripoli, Libya (PHT). Research questions were formulated to investigate the research objectives. In order to measure quality of service, patient's perceptions of service quality were investigated and data on patient were collected using an adapted instrument based on (1) SERVPERF, which was developed as an alternative to the disconfirmation-based SERVQUAL and (2) past research. Final sample size for analysis was 107. Exploratory (EFA) and Outer model analysis (OMA) were conducted. Hypotheses were tested using multiple regression analysis and hierarchical multiple regression through SPSS and Partial Least Square (PLS). Result confirmed five service quality dimensions by EFA as same as OMA. The findings revealed that the time and effort did not moderate the relationship between service quality dimensions and patient satisfaction in both techniques SPSS and PLS, although the result revealed slightly different between SPSS and PLS related to the effect of service quality dimensions on patient satisfaction. This study could contribute the further development of studies in service quality, perceived value and patient satisfaction in healthcare environment. Finally, the implications and limitations were also discussed.*

***KEYWORDS****-Libya, Patient Satisfaction, Perceived Value, Private Hospitals, Service Quality, PLS, SPSS.*

## I. Introduction

Meeting customer's needs and expectations is a great challenge facing service organizations. Satisfaction is influenced by the developments surrounding, including the massive, rapid and intense competition in the various activities, which is why organizations are always looking for solutions to satisfy its customers in light of these variables. The key to continue competitive advantage lies in delivering high quality services that will in turn lead in satisfied customers [1]. The main goal of this research was examined the moderating role of price and non-price (time and efforts) dimensions of perceived value on the relationship between service quality dimensions and patient satisfaction in private hospital in Tripoli, Libya. Another objective was examined if patient's satisfaction is influenced by service quality dimensions. These dimensions are listed as follows: environment and technology, convenience of care process, responsiveness, trust and security, and respect and caring. The relationship between service quality and satisfaction of customers has been studied by numerous authors, scholars and researchers within various contexts spanning many years [2-13]. Researchers recommended exploring the struggle of developing countries to maximize health care access, cost, and quality [14].

In the health care context, many studies have also examined the relationship between service quality and satisfaction. There have been some studies on private hospitals that have empirically addressed this relationship [15-16]. Furthermore, most of these published health care studies are focused on health care in North America, Europe, and relatively fewer in Asia. Very few studies have actually been done in North African Arab countries which have tested the relationship between service quality and patient satisfaction in public general hospitals [17-18].

Perceived value is an antecedent of customer satisfaction [19-21]. Researchers indicate that customer satisfaction is influenced by relational benefits and perceived value [22-23]. Further, the relationship between service quality, perceived value, and customer satisfaction are crucial to the service industry [24]. Utility theory, which is resulting from the modern microeconomic theory, indicates the existence of a relationship between quality and value. Quality offers utility to the customer, who, in turn, must forgo the disutility inherent in price. Deruyter find that an increase in service quality leads to an increase in satisfaction. However, such increase in the quality of service may not be indicative of increased levels of service satisfaction if the price is high [25].

Literature indicated that the direct effect of either service quality or perceived value on satisfaction separately explained lower of the variance in satisfaction than the interaction between service quality and perceived value. Authors such as [26] and [27] agree that value is highly related to cost customers assess and pay for quality, whereas the utility of a service is depend on customer perceptions of what is got (i.e. some may want volume, others high quality, still others convenience) and what is given (i.e. some are concerned only with money expended, others with time or effort). Therefore, monetary of perceived value such as time costs, search costs and psychological costs [27].

Prior studies have examined perceived value in mediating the relationship between service quality and customer satisfaction [28-31]. However there is virtually no empirical study to date examining the role of price, time and efforts of perceived value in moderating the relationship between service quality dimensions and patient satisfaction in healthcare services. Although research on hospital services satisfaction is vital to ensure a high quality of care and patient satisfaction and to maximize the benefits in community. Given that the possible role of value as a moderating variable has received less academic attention, little is known about the moderating effect of perceived value in service quality models [32]. Others have examined the impact of value on satisfaction [33], the moderating role of perceived value in the quality of service and satisfaction relationship [26]. They found that perceived value has a significant moderating role between service quality and satisfaction. Thus, the understanding of the moderating effect of price, time and efforts value still remains key issues. This study will contribute to a conceptual model that, reflecting the moderating role of patient perceived price, time and efforts of service value on the relationship between service quality dimensions and patient satisfaction cross different cultures when previous studies have done.

Although efforts have been made to facilitate the exchange of technological knowledge among developed, emerging, and developing countries, the management of health care remains a challenging issue in developing countries, such as Libya. Even though medical care is provided to all Libyan citizens, Libyans are increasingly interested in purchasing private medical care to receive what is perceived to be a higher level of service and quality [34]. Focusing service quality and understanding what are the patient needs and the health care system should be an objective of private hospital. Given the importance of patient satisfaction, this study examined to what extent the patient is satisfied with the private hospitals service quality. Due to advances in technology, patient satisfaction and service quality have become critical objectives in the strategic planning processes of organizations. Patients today are more informed than ever and will not hesitate to switch to an alternative health care professional if they don't obtain satisfaction [15].

Based on the foregoing, the effect of quality on satisfaction may not just be direct but may also be moderated by value. Perceived value is likely to play a more important role than service quality to satisfy patients. Therefore, it is the task and the challenge of this study to determine if perceived value can increase the relationship between service quality and patient satisfaction in Libya, a non-western or Asian nation. In the sense that, to what extent do perceived of price, time and efforts will be able to influence the relationship between service quality and patient satisfaction levels in private hospitals in Libya? However, the study will explore which particular service quality dimension is more directly related to patients' perceived value; which in turn affects patient satisfaction in the health care context.

### 1.1 Research questions

Q1. Is there a significant relationship between service quality dimensions and patient satisfaction?

Q2. Does each of price, time and effort of perceived value moderate the relationship between service quality dimensions and patient satisfaction?

Q3. Is there any differences in findings between using SPSS and PLS techniques?

### 1.2 Research objectives

1. To examine the relationship between service quality dimensions and patient satisfaction.

2. To examine the moderating effect of price, time and effort on the relationship between service quality dimensions and patient satisfaction.

### 1.3 Research Hypotheses

H1: There is a relationship between environment and technology and patient satisfaction

H2: There is a relationship between convenience of care process and patient satisfaction

H3: There is a relationship between responsiveness and patient satisfaction

H4: There is a relationship between trust and security and patient satisfaction

H5: There is a relationship between respect and caring and patient satisfaction

H6: Price, time and efforts of perceived value moderate the relationship between service quality dimensions and patient satisfaction.

## II. Literature Review

In 2000, [35] indicated that perception of service quality is an attitude, which in turn is related to the function of some combination of attributes that a patient considers to be contents of quality. These attributes can be classified into two sets, functional, which include measures such as ambiance and provider attentiveness; and technical, such as outcome that describe how the service is delivered. Thus, there exist an association between perceived service quality and patient satisfaction.In 2007, [36]focused on patient satisfaction with a medical service encounter rather than on the efficacy of treatment, the study suggested that using patient feedback as an input for quality improvement improves performance on both dimensions. The study also suggested that quality medical encounters improve patient satisfaction.

In the healthcare area, quality service strategies may be targeted at rationing and augmenting capacity through new hospitals, extensions and new service lines such as public health service direct [37].[38]suggested that healthcare consumers' assessments of the various tangible elements associated with a particular healthcare service include both the physical environment and physical facilities in which the service occurs, as well as the billing procedures and other amenities such as food and parking facilities associated with each institution's delivery system. Technical quality in the healthcare environment referred to as quality in fact, is defined primarily on the basis of the technical accuracy of the diagnoses and procedures. In healthcare organizations, several techniques for measuring technical quality have been proposed and are nowadays in use (Joint Commission for Accreditation of Healthcare Organizations, 1987). Consequently, acknowledging that perceived quality is the most important variable influencing consumers' value perceptions seems reasonable. These value perceptions, in turn, affect customers' intentions to purchase products or services [39-40],[27].

### 1.4 Service Quality Dimensions

Service quality has been approached as SERVQUAL, a multi-item scale first suggested by [8]. It has been utilized for measuring customer perceptions of service quality across a wide variety of service environments including healthcare in the US. The SERVQUAL scale was developed by [41] first applied SERVQUAL to quantitatively measure service quality in several sectors. In particular, the scale was used to measure the difference between customer expectations and perceptions. [8] had at first identified ten dimensions of service quality which were, at a latter step and after extensive exploratory research and empirical examining, operationalized in five dimensions that comprise 22-items. The instrument distinguishes between different dimensions of services from the consumer's point of view [8].

More specific, in the health care service environment, [42]was the first to adopt the SERVQUAL instrument for evaluating healthcare services. In particular, some scholars analyzed and confirmed the scale's practical suitability for health care facilities, as well as its reliability and validity for evaluating hospital services [43-45]. They came out with validated results that are replicable after passing through the rigour of robust research. The investigators of the scale emphasize that while each service industry has different cases with other aspects, there

are five dimensions or constructs of service quality which identified for applicability in service-providing organizations in general. These dimensions are tangibles, responsiveness, assurance, reliability and empathy[8].

Despite the controversies regarding the validity and reliability of SERVQUAL, this model (both with and without modification) have been applied in the health care sector [46-47]. Moreover, SERVQUAL has been widely used in other service industries, including hotels, travel, higher education, real estates, accountancy, architecture, construction services, dentistry, call centers, and hospitals [48-49].

Traditional service quality dimensions

**Tangibles** are defined as the appearance of physical facilities, equipment, personal, and communication materials [50]. All of these provide physical representations or images of the service that customers, particularly new customers, will use to evaluate quality. In this regard, [51]askedThe National Health Service (NHS) patients to identity the quality dimensions they considered to be important. Tangible was found out to be the least important in their assessment.

**Reliability** is defined as the ability to perform the promised service dependably and accurately [50]. Reliabilityhas been consistently shown to be the most important determinant of perceptions of service quality among U.S customers [41]. In their study in Taiwan aimed sat constructing an instrument to evaluate service quality of mobile value added services and extend the discussion of the relationships among service quality, perceived value and customer satisfaction. [20]found out that reliability was most influential on perceived value and customer satisfaction.

**Responsiveness** is the willingness to help customers and to provide prompt service. This dimension emphasizes attentiveness and promptness in dealing with customer requests, questions, complaints, and problems [50]. They also added responsiveness as communicated to the customer by the length of time they have to wait for assistance, to have their questions answered, or their problems attended to. Responsiveness also captures the notion of flexibility and ability to customize the service to customer needs. [52]in their study "Delivering quality service to in- and out-patients in a South African public hospital" that focused only on Responsiveness. They found that all patients demand excellent responsive levels but none of these were met, resulting in dissatisfaction; they also found that overall patients were least satisfied with reasonable waiting time for receiving medicine as well as reasonable waiting time for treatment. But [53]found that there is no significant relationship between responsiveness and students' satisfaction. On the other hand, [32]conducted an exploratory study to examine perceived value as a moderator between service quality and academic staff's satisfaction in higher institutions in Malaysia. They found that perceived value about the use of responsiveness and has not increased customer satisfaction. To truly distinguish themselves on responsiveness, companies need well-staffed customer service departments as well as responsive frontline people in all the contact positions of the organization [52].

**Assurance**is defined as employees' knowledge and courtesy and the ability of the firm and its employees to inspire trust and confidence [50]. It is the view of these scholars that this dimension is likely to be particularly important for services that customers perceived as involving high risk and/or about which they feel uncertain about their ability to evaluate outcomes, for example medical, banking, insurance, brokerage and legal service. Anderson [54]also addressed the quality of services provided by a public university health clinic by using SERVQUAL in which he utilized 15-items of the instrument representing the five dimensions of SERVQUAL. The findings indicated that all the five dimensions measured negatively, assurance being most negatively measured. It was based on these outcomes that Anderson made some recommendations for budgeting future quality improvement projects.

**Empathy**is depicted in the way and manner the organization engages in caring, and providing individualized attention to its customers and clients. The essence of respect and caring is convening, through personalized or customized service which invariably emphasizes that customers are unique and special [50]. Empathy means caring and understanding, which a company provides and/or offers its customers in terms of its individualized and personalized attention [41]. In the NHS hospitals [51]found that empathy was shown to be of equal importance. Al-alak[53]found that empathy had the strongest influence on customer satisfaction and behavioral intention in a spa setting in Malaysia. Based on the above discussion this current study will use all five dimensions of service quality as independent variables.

### 1.5 Patient Satisfaction

A widely accepted description of satisfaction would have been the process leading to the consumer's fulfillment response. In other words, "it is a judgment that a product or service feature, or the product of service itself, provided (or is providing) a pleasurable level of consumption-related fulfillment, including levels of under-or over-fulfillment…" [55]. While, Rust and Oliver [56]described the dominant model of customer satisfaction in the services review as: In brief, customer satisfaction is a summary cognitive and affective reaction to a service incident (or sometimes to a long-term service relationship). Satisfaction (or dissatisfaction) results from experiencing a service quality encounter and comparing that encounter with what was expected[56, p. 2].

For healthcare providers, researchers pointed out that customer satisfaction leads to profitable and advantageous results [57]; [50]. Others reported that Patient satisfaction also affects the rate of patient compliance with physician advice and requests [58-59].Therefore, satisfaction actually influences the outcome of medical usage. For these causes, patient satisfaction estimation has become an integral part of healthcare organizations' strategic processes [60]. [61]indicated treatment is a basic health service expectation as patient satisfaction is known as an evaluation of distinct healthcare dimensions [62]. However, [63]considered that patient satisfaction as one of the desired results of care and so patient satisfaction information is very important to quality assessments for managing healthcare. Patient satisfaction also enhances the image of a hospital and that can be translated into increased service use and market share [64]. Patient satisfaction is frequently used as an efficient proxy measure of quality of care. A considerable body of evidence exists regarding how patient satisfaction influences patient return and increased referrals [65-66];[36]. Ruggeri defined patient satisfaction as ''the extent to which services satisfy wishes, wants or desires for treatment' [67].

### 1.6 Monetary (Price) and Non-Monetary(Time and Efforts) Patient Perceived Value

The concept of perceived value has become of increasing interest to marketing researchers as it has a mediating relationship with the perceptions of customer satisfaction [33]. The perceived value variable was found out to be a mediating variable between perceived quality and customer satisfaction [28-31]. On the other hand studies suggest that perceived value is moderating the relationship between service quality and customer satisfaction (e.g. [25];[68];[32]. Value may be viewed as the evaluation of what is received compared with what is given in a service encounter. [33]defined value as "benefits received relative to costs" (p. 393). Similarly, [27]defined value as a consumer's overall assessment of product (or service) utility, based on perceptions of what was received and what was given in the exchange. Hence, perceived value is the difference between what a customer gives and what he/she gets.

By interesting qualitative study [27] has investigated the concept of value and reports findings which identified four consumer definitions of product value for supporting literature, these components are centred around reducing price, how reasonable the price is compared to quality as the customer need. These definitions are (1) value is low price (2) value is whatever I want in a product (3) value is the quality I get for the price I pay and (4) value is what I get for what I give. Utility theory [69] provided the theoretical based upon for the value construct. This approach emphasizes that very often customers do not buy services for their own benefit. The customers buy set of attributes that together reflect a certain level of service quality which firms are offered at a certain price level. This theory emphasizes the linking between quality and value. The common method of perceived value dimensions is SERV-PERVAL scale which proposed by [70]. This method includes five dimensions: i.e. quality, monetary price, non-monetary price, reputation, and emotional response. In this study, perceived value is a result of patient's evaluation of the service received against their perceptions of the non-price costs such as time and efforts which have not been studied as moderator before.

### 1.7 Relationship between Service Quality, Perceived Value and Satisfaction

The link between variables as service quality, perceived value and customer satisfaction has been addressed in a variety of industries. Some studies argue that perceived value is an intervening variable that mediates the relationship between service quality and customer satisfaction (e.g. [28-31]. Some other studies suggest that perceived value is moderating the relationship between service quality and customer satisfaction (e.g. [25];[68];[32]. [25]examined the moderating role of perceived value on the relationship between service quality and customer satisfaction. They found that the moderating influence supports such a role for value in an audit firm, but not in the health care industry. [68]found that perceived performance has an indirect effect on overall satisfaction moderated by perceived value. Hence he mentioned that without taking perceived value into account, the predictive power of service quality on overall satisfaction is questionable. This result also supports the debate of the importance of the measurement of perceived value in conjunction with the measurement of satisfaction by [71] and [72].

However, [32]addressed the perceived value as a moderating variable on the relationship between service quality features and customer satisfaction in one public institution of higher learning in East Malaysia. But they examined only three dimensions of service quality named responsiveness, assurance and respect and caring, the study found that perceived value has increased the effect of respect and caring on customer satisfaction, but perceived value has not increased the effect of responsiveness and assurance on customer satisfaction. Thus, the finding showed that perceived value does act only as a partial moderator in the overall relationship between service quality features and customer satisfaction. Authors recommended that the organizational features (e.g., ownership and type) are a potential variable that can influence perceive value about service quality and this needs to be further explored. (ownership and type). And they added that using organizational ownership and type may provide meaningful perspectives for understanding of how individual likeness and differences affect service quality policies within an organization. The present research proposes that perceived value has a moderating effect on the link between service quality and satisfaction. Therefore, this research seeks to explore whether the relationship between service quality dimensions and patient satisfaction is fully or partially moderated by value.

Even though many studies have been done, little is known about the moderating effect of perceived value in service quality models [32]. Thus, the understanding of the moderating effect of perceived service value still remains key issues. The current study contributes to a conceptual model that, reflecting the moderating role of customer-perceived service value on the relationship between service quality dimensions and patient satisfaction cross different culture called Libya. However, the majority of these studies were conducted in the Western and Asian region. In Arab and North Africa as the researcher knows very few studies have been conducted [73]. He examined the relative importance of service quality, relational benefits, and customer perceived value to customer loyalty in the context of family doctors in Egypt non-western context. He found service quality has an effect on perceived customer value. On the other hand there is no study as the researcher's knowledge addressed the relationship between three variables in private hospitals. Additionally, the research did not find any study examining this relation moderating by perceived value in private hospitals. In this aspect, there is a need to betterascertain the nature of quality relationships with satisfaction moderated by patient perceived value in healthcare subject.

## III. METHODOLOGY

The purpose of this research was to determine the perceived value (price, time and efforts) that patient spend to get the treatment and healthcare services in PHT and its influence on the relationship between service quality dimensions and patient satisfaction. Thus, the study favors a quantitative research perspective in approach. This study is going to provide answers to the research questions, which will ultimately identify factors that contribute to the development of service quality, perceived value and patient satisfaction at PHT in Libya and marketing services in general. Patients at the PHT were asked about the service quality provided in those hospitals, their opinions and their levels of satisfaction towards the quality of services provided. In addition patients were also asked about how they perceived the value of price, time and efforts towards service quality. It is instructive to state that quantitative research needs a structured instrument to measure and document data. The SERVQUAL scale is considered to be one of the most adaptable in providing a valid instrument for measuring health service quality (e.g. [8; 12; 42; 74-79]).

Based on these studies some developments were made consistent with the research setting set forth in this research, 32 items representing the most widely acknowledged and empirically tested five dimensions of service quality (i.e. Environment and technology, Convenience of care process, Responsiveness, Assurance, and Respect and caring), and only service of performance approach - perceptions of patients, SERVPERF model [2] - based instrument measuring service quality, developed as an alternative to the disconfirmation based SERVQUAL [8; 41]were measured in order to determine the level of service quality. Price, time and efforts of perceived value was measured by six items adapted from previous studies [80-82][27]. Patient satisfaction was measured by fiveitems adopted from [55]. A five- point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree) was utilized for all items. The demographic factors of the patients selected as participants such as age, education level, gender and income will also be taken into consideration in the data gathering process in the study. The target population of this study consisted of the patients in private hospitals in Tripoli. A total of 240 questionnaires were distributed. A hundred and seven questionnaires found to be completed and usable to entered into SPSS.

## IV. DATA ANALYSIS AND FINDINGS

### 1.8 Respondents' Profile

This part presents the statistical responses to the demographic questions. The four demographic questions addressed the variables of, gender, education, income, and age. As presented in Table 1**Error! Reference source not found.**,72.9% (n=78) of respondents were female compared to 27.1% (n=29) of respondents were male.The majority of respondents 36.4 (n=39) were within the age ranged of 30-39, followed by (33.6%) of respondents were within the age ranged of 21 – 29, whereas (16.8) represented 50 years and above,few of respondents were young who ages were between 18 to 20 years which represented only (5.6%) of the total patients. This is logical and not surprising because the young people less vulnerable to disease and vice versa in the case of the elderly. Regarding to education level of the respondents, the majority of respondents (49.5%; n=53) had Bachelor's degree, followed by 21.5% (n= 23) of respondents had a primary school, whereas (15.9%) and (12.1%) of participants had secondary school and do not have education respectively. Only one of respondent (.9%) had diploma level. A substantial percentage 57.9 % (n=62) of respondents reported that their monthly income is less than LYD 200 hundred,followed by (30%) of respondents were had monthly income between LYD400 and LYD800. While (6.5%) of sample their monthly income is within LYD200 and LYD. About (5.6%) of respondents were had monthly income more than LYD800.

### 1.9 Reliability and validity Analysis (SPSS)

According to ([83], pp. 161,327), Exploratory Factor Analysis (EFA) was used to assess the validity of the instrument. EFA was used to determine the number of factors and which observed items are indicators of each latent variable. EFA was first used to assess the validity of each variable. These variables include the dimensions of service quality: environment, convenience, responsiveness, trust, and caring. Other variables include patient perceived value (price, time and efforts) and patient satisfaction.

A Principle Component Analysis (PCA) with Varimax method was run for seven variables which include service quality dimensions (32 items), the moderator variable which represented by perceived value of time and efforts (4 items) as moderator and patient satisfaction (5 items) as dependent variable. With 107 respondents (patients) the suitability of PCA was assessed prior to analysis.

Table 1. Frequencies of Demographic Respondents and Accommodation Information Attributes of Tripoli Private Hospitals

| Demographic Attributes | | Frequency | % |
|---|---|---|---|
| Gender | Male | 29 | 27.1 |
| | Female | 78 | 72.9 |
| | **Total** | **107** | **100.** |
| Age | 18 – 20 years | 6 | 5.6 |
| | 21 – 29 years | 36 | 33.6 |
| | 30 – 39 years | 39 | 36.4 |
| | 40 – 49 years | 8 | 7.5 |
| | Over 50 years | 18 | 16.8 |
| | **Total** | **107** | **100.** |
| Educational Levels | No education | 13 | 12.1 |
| | Primary | 23 | 21.5 |
| | Secondary | 17 | 15.9 |
| | Diploma | 1 | .9 |
| | Bachelor graduate | 53 | 49.5 |
| | **Total** | **107** | **100.** |
| Monthly Income | Less than LYD200 | 62 | 57.9 |
| | LYD 200 less than LYD 400 | 7 | 6.5 |
| | LYD 400 less than LYD 600 | 16 | 15.0 |
| | LYD 600 less than LYD 800 | 16 | 15.0 |
| | LYD 800 or above | 6 | 5.6 |
| | **Total** | **107** | **100.** |

The final solution of PCA revealed eight components that had eigenvalues greater than one and which explained 76.714 of the total variance which are closely similar to the factor structure hypothesized in the context of this

study. These factors are Environment (ENMT-3 items); Convenience (CCOP-4 items);Responsiveness (RESP-3 items); Trust (TSMS-4items) and Caring (MSRC-4 items) related to independent variable, whereas two components for moderator variables. These factors are caring Perceived Value of Price (PVM-2 items) and Perceived Value of Time and Efforts (PVTE-4 items).Dependent variable presented Patient Satisfaction (PSAT-4items).

Finally, the Cronbach's alpha for the five quality dimensions constructs, the perceived value construct, and the satisfaction construct were robust and well above the lower limit of 0.60 and 0.70 which are considered satisfactory threshold values [84]. For details see Table 2.

### 1.10 Reliability and validity Analysis (PLS)

Smart PLS is one of the prominent software applications for Partial Least Squares Structural Equation Modeling (PLS-SEM). It was developed by [85]. PLS is a soft modeling approach to SEM with no assumptions about data distribution [86]. It is essential to establish the reliability and validity of the latent variables to complete the examination of the structural model.

As discussed earlier, this study aims to study the relationship between service quality dimensions and satisfaction in Libyan Private Hospitals Service. Therefore, this study also used Partial Least Square (PLS) method to analyze the results. PLS has been utilized by number of researchers from various fields for example consumer behavior marketing [87-90], organizational behavior[91], business strategy[92-93], management information systems [94-95] , social sciences [96], and e-business [97]. Two steps approach was employed in order to achieve valid and reliable results [98]. Confirming the construct validity first and then proceeding to test the hypothesis.

Outer model analysis

[83]pointed out that construct validity testifies to how well the results obtained from the use of the measure fit the theories around which the test is designed. According to [98-99] to confirm the content validity of the measurement model, factor loading of the items could be used. Table 3 and Table 4 depict the various reliability and validity indicators through factor loading of the manifest variables(Outer loadings) could be used to confirm the content validity of the measurement model.

Table 2. Rotated EFA Factor Solution

| Label | Environment and Medical Technology | Convenience of Care Process | Responsiveness | Trust and Security Medical Staff | Medical Staff Respect and Caring | Patient Satisfaction | Perceived Value Time and Efforts | Perceived Value Monetary |
|---|---|---|---|---|---|---|---|---|
| ENMT1 | .875 | | | | | | | |
| ENMT2 | .875 | | | | | | | |
| ENMT3 | .763 | | | | | | | |
| CCOP1 | | .929 | | | | | | |
| CCOP2 | | .840 | | | | | | |
| CCOP3 | | .748 | | | | | | |
| CCOP4 | | excluded | | | | | | |
| CCOP5 | | .504 | | | | | | |
| RESP1 | | | .785 | | | | | |
| RESP2 | | | .838 | | | | | |
| RESP3 | | | .786 | | | | | |
| RESP4 | | | excluded | | | | | |
| TSMS1 | | | | .735 | | | | |
| TSMS2 | | | | .679 | | | | |
| TSMS3 | | | | .841 | | | | |
| TSMS4 | | | | .546 | | | | |
| MSRC1 | | | | | .774 | | | |
| MSRC2 | | | | | .734 | | | |
| MSRC3 | | | | | .703 | | | |
| MSRC4 | | | | | .738 | | | |
| PSAT1 | | | | | | .885 | | |
| PSAT2 | | | | | | .676 | | |
| PSAT3 | | | | | | .691 | | |
| PSAT4 | | | | | | .681 | | |
| PSAT5 | | | | | | excluded | | |
| PVTE1 | | | | | | | .806 | |
| PVTE2 | | | | | | | .846 | |
| PVTE3 | | | | | | | .803 | |
| PVTE4 | | | | | | | .864 | |
| PVM1 | | | | | | | | .670 |
| PVM2 | | | | | | | | .767 |
| **Cronbach's α** | **.879** | **.818** | **.810** | **.846** | **.850** | **.789** | **.884** | **.665** |

Eight constructs remained,five represented service quality, two represented perceived value, and one represented patient satisfaction. The convergent validity of the constructs was supported as all factor loadings exceeded the 0.7 threshold (Table 3); that is mean, more than 50% of the variance in the manifest /observed variable was due to the underlying construct [93].

Table 3. Results of Outer Model and First-Order Latent Variables with Reflective Indicators

| Manifest Variables Label | Latent Variables | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | Environment and Medical Technology | Convenience of Care Process | Responsiveness | Trust and Security Medical Staff | Medical Staff Respect and Caring | Patient Satisfaction | Perceived Value Time and Efforts | Perceived Value Monetary |
| ENMT1 | 0.967 | | | | | | | |
| ENMT2 | 0.967 | | | | | | | |
| ENMT3 | 0.740 | | | | | | | |
| CCOP1 | | 0.820 | | | | | | |
| CCOP2 | | 0.687 | | | | | | |
| CCOP3 | | 0.768 | | | | | | |
| CCOP4 | | 0.887 | | | | | | |
| CCOP5 | | 0.881 | | | | | | |
| RESP1 | | | 0.924 | | | | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| RESP2 | 0.749 | | | | | |
| RESP3 | excluded | | | | | |
| RESP4 | 0.711 | | | | | |
| TSMS1 | | 0.917 | | | | |
| TSMS2 | | 0.850 | | | | |
| TSMS3 | | 0.814 | | | | |
| TSMS4 | | 0.737 | | | | |
| MSRC1 | | | 0.894 | | | |
| MSRC2 | | | 0.826 | | | |
| MSRC3 | | | 0.773 | | | |
| MSRC4 | | | 0.862 | | | |
| PSAT1 | | | | 0.731 | | |
| PSAT2 | | | | excluded | | |
| PSAT3 | | | | 0.891 | | |
| PSAT4 | | | | 0.923 | | |
| PSAT5 | | | | 0.798 | | |
| PVTE1 | | | | | 0.855 | |
| PVTE2 | | | | | 0.855 | |
| PVTE3 | | | | | 0.835 | |
| PVTE4 | | | | | 0.907 | |
| PVM1 | | | | | | 0.882 |
| PVM2 | | | | | | 0.849 |

Researchers have suggested using the new developed scales, which is 0.50 or higher should be retain in the measurement model. Thus, the outer loadings below 0.50 were removed from the measurement models since its indicates this indicator have less contribution towards these factors. In this case, one item from latent RESP and another from latent PSAT were removed.

Convergent validity and Construct Reliability

Table 4, presented the result of AVE and construct reliability. Besides, the internal reliability which is cronbach alpha also presented as a traditional technique to determine the reliable of measurement model. Thus, this method still required to help the researchers obtain the true model. According to [100]AVE value of at least 0.5 indicates sufficient convergent validity. Other than that, [84; 101] suggest value greater than 0.70 for composite reliability and cronbach alpha. Furthermore, some of the researcher required the communality to determine the acceptable of measurement model. For example, [102] suggested that the value of communality is accepted when greater than 0.50. Hence, all requirement for convergent validity, construct reliability, cronbach alpha or internal reliability, and communality is achieved. Then, discriminant validity was also conducted (see Table 4).

Table 4. Convergent Validity and Construct Reliability

| Variables | AVE | Composite Reliability | Cronbach's Alpha | Communality |
|---|---|---|---|---|
| Environment & Technology | 0.806 | 0.925 | 0.873 | 0.806 |
| Convenience | 0.659 | 0.906 | 0.873 | 0.659 |
| Responsiveness | 0.640 | 0.840 | 0.713 | 0.640 |
| Trust & security | 0.693 | 0.900 | 0.853 | 0.640 |
| Respect & Caring | 0.706 | 0.905 | 0.861 | 0.706 |
| Patient Satisfaction | 0.704 | 0.904 | 0.860 | 0.704 |
| Non –mon- Perceived Value | 0.746 | 0.921 | 0.886 | 0.746 |
| Mon Perceived Value | 0.750 | 0.857 | 0.668 | 0.750 |

Discriminant Validity

[103] explains that discriminant validity test shows how much variance in the indicators that are able to explain variance in the construct. Discriminant validity value obtained from the square root of AVE value. The diagonal values (**in bold**) are the square root of AVE while other values are the correlation between the respective constructs. In this case, the discriminant validity is achieved when a diagonal value **bold** is greater than the value in its row and column. In this research as it shown in Table 5, all AVE values are greater than the value in its row and column.

Table 5. Discriminant Validity According on PLS

| Variable | CCOP | ENMT | MSRC | PSAT | PVM | PVTE | RESP | TSMS |
|---|---|---|---|---|---|---|---|---|
| CCOP | 0.812 | | | | | | | |
| ENMT | 0.269 | 0.898 | | | | | | |
| MSRC | 0.464 | 0.427 | 0.840 | | | | | |
| PSAT | 0.461 | 0.435 | 0.571 | 0.839 | | | | |
| PVM | 0.289 | 0.212 | 0.227 | 0.262 | 0.866 | | | |
| PVTE | 0.135 | 0.154 | 0.272 | 0.375 | 0.467 | 0.864 | | |
| RESP | 0.412 | 0.380 | 0.595 | 0.416 | 0.247 | 0.211 | 0.800 | |
| TSMS | 0.290 | 0.383 | 0.628 | 0.462 | 0.329 | 0.362 | 0.383 | 0.832 |

Comparing the results, as it can be seen in Table 2 and Table3, there is no big different between the results in both SPSS and PLS technique. The result from EFA and OML created five service quality dimensions, two perceived value dimensions and one patient satisfaction dimension. Little change was occurred, in EFA three items were excluded from different latent. These are CCOP4, RESP4, and PSAT5, while two items were excluded in OML, these items are RESP3 and PSAT2. Related to cronbach'salph also some different were found but all variables met the criteria or assumptions of cronbach'salph in both EFA and PLS. Table 6 displays more information about these differences.

Table 6.Cronbac'sAlph in both SPSS and PLS

| Variable | SPSS | PLS |
|---|---|---|
| Environment and Medical Technology | 0.88 | 0.87 |
| Convenience of Care Process | 0.82 | 0.87 |
| Responsiveness | 0.81 | 0.71 |
| Trust and Security Medical Staff | 0.85 | 0.85 |
| Medical Staff Respect and Caring | 0.85 | 0.86 |
| Patient Satisfaction | 0.79 | 0.86 |
| Perceived Value Time and Efforts | 0.88 | 0.89 |
| Perceived Value Monetary | 0.67 | 0.67 |

### 1.11 Testing hypothesis (SPSS analysis)

After reliability and validity were carried out through EFA and number of variables were stated. Testing hypotheses was analyzed by using multiple regressions to predict patient satisfaction PSAT from service quality dimensions CCOP, ENMT, RESP, TSMS and MSRC. Assumption for regression were checked, the association between independent variables were less than .85. To avoid the collinearity problem VIF was checked. VIF of all independents variables are less than 5, lower than 5 is the rule of thumb [104], The Durbin-Watson statistic of 1.332 is looks far from 2, this might leads to normality distribution problem. These variables statistically significantly predicted PSAT, $F$ (5, 101) = 4.788, $p$< .001, $R^2$ = .192. In social sciences, a minimum R-square value of 0.15 is a required norm. However, only CCOP has added statistically significant to the prediction, $p$< 0.05. In other words, the p-value for ENMT, RESP, TSMS and MSRC are (.146, .985, .781, .107) respectively, which is more than 0.05. Therefore, these variables are not a significant Predictor of PSAT. The p-value for CCOP is .044 less than 0.05. Thus, CCOP is a significant predictor.

Table 7. Regression Coefficients

| Model 1 | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. | 95.0% Confidence Interval for B | | Collinearity Statistics | |
|---|---|---|---|---|---|---|---|---|---|
| | B | Std. Error | Beta | | | Lower Bound | Upper Bound | Tolerance | VIF |
| (Constant) | 1.489 | .569 | | 2.614 | .010 | .359 | 2.618 | | |
| CCOP | .177 | .088 | .195 | 2.005 | .048 | .002 | .352 | .844 | 1.185 |
| ENMT | .157 | .107 | .155 | 1.465 | .146 | -.055 | .369 | .715 | 1.398 |
| RESP | -.002 | .132 | -.002 | -.019 | .985 | -.264 | .259 | .746 | 1.341 |
| TSMS | .035 | .126 | .032 | .278 | .781 | -.215 | .285 | .594 | 1.683 |
| MSRC | .236 | .145 | .205 | 1.625 | .107 | -.052 | .523 | .503 | 1.988 |

Dependent Variable: PSAT

### 1.12 Testing hypothesis -Path estimates(PLS)/ inner model

Due to the distribution of PLS is unknown, predictable significance testing is difficult. Thus, resampling methods such as the bootstrap might be achieved[105].Using a bootstrapping technique, path loadings and t-statistics for hypothesized relationships were calculated. The results are shown in Fig. 1.

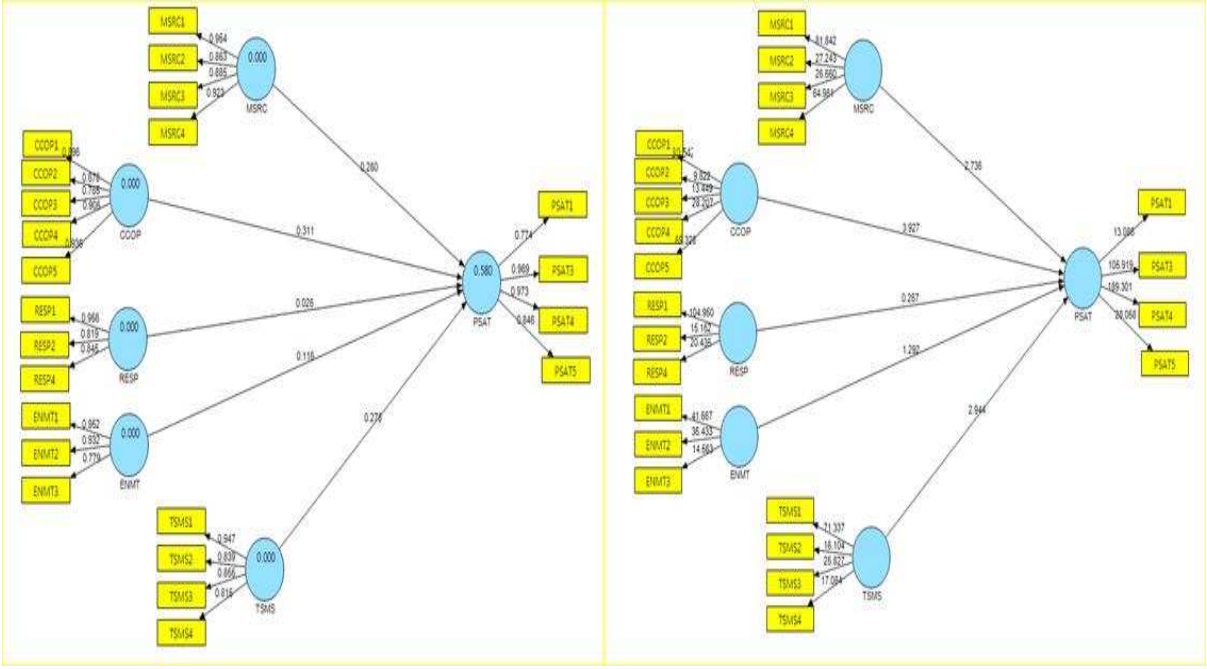


Figure.1. Coefficients effect and T- statistics

Fig. 1 shows the results of the inner model, indicating that three of the five hypotheses were supported while two indicated no significance. The patient satisfaction construct was positively influenced by CCOP, TSMS and MSRC (regression coefficient are 0.311, 0.278 and 0.260) and t- statistics values are (3.837, 2.810 and 2.618) respectively, which greater than *t* cut off (1.96). However, remained variables ENMT, RESP were not to be effected on patient satisfaction (regression coefficient are 0.116 and 0.026) and t- statistics are (1.396 and 0.251) respectively, which less than (1.96) the level of *t* value. The path coefficient will be significant if the *t*-statistics value is larger than 1.96 to due using a two-tailed *t*-test with a significance level of 5% [91]. More details in Table 9. Based on the results reported in Fig 1 and Table 8, the $R^2$ was found to be 0.580 indicating that dimensions of service quality can account for 58% of the variance in the patient satisfaction. The R2 indicates the amount of variance explained by the exogenous variables.In line with the assessment criterion suggested by [106], 0.26 substantial, 0.13 moderate and 0.02weak.

Table 8. Result of Fit Model

| LV | AVE | Composite Reliability | R Square | Cronbachs Alpha | Communality |
|---|---|---|---|---|---|
| CCOP | 0.715 | 0.925 | | 0.902 | 0.715 |
| ENMT | 0.794 | 0.920 | | 0.870 | 0.794 |
| MSRC | 0.822 | 0.949 | | 0.927 | 0.822 |
| PSAT | 0.801 | 0.941 | 0.580 | 0.915 | 0.801 |
| RESP | 0.767 | 0.908 | | 0.846 | 0.767 |
| TSMS | 0.749 | 0.922 | | 0.887 | 0.749 |

LV= latent variables

Table 9. Hypotheses Result

| Hypothesis | Path coefficient | t statistic |
|---|---|---|
| CCOP -> PSAT | 0.311 | 3.837 |
| ENMT -> PSAT | 0.116 | 1.396 |
| MSRC -> PSAT | 0.260 | 2.618 |
| RESP -> PSAT | 0.026 | 0.251 |
| TSMS -> PSAT | 0.278 | 2.810 |

Finally, results in SPSS and PLS as shown above revealed some differences related to the relationship between service quality dimensions and patient satisfaction, result by SPSS stated only CCOP has added statistically significant to the prediction, while the result by PLS indicated that patient satisfaction construct was positively influenced by three of service quality dimensions (CCOP, TSMS and MSRC). The reasons of these distinctions may that the data was not exactly normally distribution in SPSS case. However, PLS makes no distributional assumptions.Further researches might be needed to confirm these findings.

### 1.13 Moderating testing (SPSS analysis)

Based on the result above by using SPSS regression, two of service quality dimensions; CCOP ($p<.05$) and MSRC also will be included ($p < .10$) were statistically significant effected on patient satisfaction. In this situation, one of important objective in this study is examining the moderating effect of price, time and effort on the relationship between service quality dimensions and patient satisfaction.

Such these relationships can be tested by a Hierarchical Multiple Regression analysis (HMR) as recommended by [107]. Two important service quality dimensions and its relationship with patient satisfaction as resulted by regression coefficient, these variables (MSRC and CCOP) will be tested in the next step. Moderating effect is an interaction that shows the degree of relationship between the independent variables and dependent variables will change if other variables exist in the relationship [107-108]. Results of an interaction are evident when the relationship between interacting terms and the dependent variable is significant. "Such *interactions* are included as *the product* of two variables in a regression model", p.354) [83]. HMR was used to analyze this hypothesis. As recommended in the literature of multivariate analysis literature [109]. Preliminary analyses were conducted to ensure no violation of the assumptions of normality, linearity, multicollinearity and homoscedasticity. Tolerance and VIF ranged from .30 to .85 and from 1.18 to 3.35, respectively which is fall in the cut-off (tolerance value of greater than .10, or a VIF value of lower 10). Multicollinearity exists when the independent variables are highly correlated is .90 and above [110]. As shown in Table 10, the correlations between each of independent variables less than .90.

Table 10. Correlation between Independent Variables

| | CCOP | MSRC | PVP | PVT_E | COCP*MPV | COCP*NMPV | RCMS*NMPV |
|---|---|---|---|---|---|---|---|
| CCOP | 1 | | | | | | |
| MSRC | 0.39 | 1 | | | | | |
| PVP | 0.23 | 0.20 | 1 | | | | |
| PVT_E | 0.12 | 0.26 | 0.47 | 1 | | | |
| COCP*MPV | -0.01 | -0.07 | 0.10 | 0.24 | 1 | | |
| COCP*NMPV | 0.14 | -0.04 | 0.30 | 0.31 | 0.27 | 1 | |
| RCMS*NMPV | -0.09 | -0.09 | 0.27 | 0.19 | 0.29 | 0.59 | 1 |
| RCMS*MPV | -0.10 | -0.12 | 0.46 | 0.22 | 0.46 | 0.33 | 0.71 |

Table 11 provides an overview of all three models and the respective regression results. The results of Model 1 show the main effects variables of service quality dimensions, CCOP and RCMS which were significant. Model 2 included the main effects variables of service quality dimensions and moderator's variables; MPV which was not significant and NMPV which shows significant effects on patient satisfaction. Finally, in model three, the interaction terms were added in the regression analysis. Two interaction terms related to COCP*MPV and COCP*NMPV. Besides, two remained related to RCMS*NMPV and RCMS*MPV. The regression coefficients show that there is no significant regression coefficients for all interaction terms, COCP*MPV ($\beta = -.119$, $p > .05$), COCP*NMPV ($\beta = .040$, $p > .05$), RCMS*NMPV ($\beta = .133$, $p > .05$) and RCMS*MPV ($\beta = -.138$, $p > .05$) in reject of H6.

HMR determines the change in $R^2$ that results during a hierarchical test of three regression equations. In the first regression the dependent variable of patient satisfaction is regressed on all demographic variables. Results show a significant $R^2$ of .170. Results also indicate that provides a significant $R^2$ of .250 (Table 11, column 6), followed by a second regression of satisfaction with both the independent variables of quality and the moderator variables. The results shown in Table 11 column 6 indicate a high increasing $R^2$ from .170 to .250 is significant ($p< .05$). In the third regression, the cross-product term of the independent variables and the moderator (interaction variables) were entered. The cross-product terms or the interactions variables were used in literature review to analysis the role of effect of moderator variable [26; 32; 111 -112] Model 3 analyze moderating relationship of MPV and NMPV. Overall model has a good fit but no variable is significance in this model .This

results improved $R^2$ to 0.281 (Table 11, column 9). The increase $R^2$ from .250 to .281 is statistically insignificant, F = .381; p >0.05.

Table 11. HMR of Predicting Patient Satisfaction from Service Quality Dimensions Interacting with Perceived Value

| **Variables** | **Model 1** | | | **Model 2** | | | **Model 3** | | |
|---|---|---|---|---|---|---|---|---|---|
| | B | β | Sig | B | β | Sig | B | β | Sig |
| CCOP | .187 | .207 | .035 | .184 | .203 | .034 | .175 | .193 | .052*** |
| MSRC | .329 | .286 | .004 | .247 | .215 | .026 | .227 | .197 | .049** |
| CCOP | | | | .184 | .203 | .034 | .175 | .193 | .052*** |
| MSRC | | | | .247 | .215 | .026 | .227 | .197 | .049** |
| PVP | | | | -.023 | -.025 | .798 | .002 | .002 | .988 |
| PVTE | | | | .307 | .301 | .003 | .322 | .316 | .003* |
| COCPXMPV | | | | | | | -.128 | -.119 | .251$^{n.s}$ |
| COCPXNMPV | | | | | | | .054 | .040 | .736$^{n.s}$ |
| RCMSXNMPV | | | | | | | .199 | .133 | .377$^{n.s}$ |
| RCMSXMPV | | | | | | | -.175 | -.138 | .381$^{n.s}$ |

| | **Model 1** | **Model 2** | **Model 3** |
|---|---|---|---|
| $R^2$ | .170 | .250 | .281 |
| $R^2$ Adjusted | .155 | .220 | .222 |
| *F* | 10.7 | 8.47 | 4.77 |
| $R^2$ Change | .170 | .079 | .031 |
| Sig. *F* Change | .000 | .006 | .381 |

** $p < 0.001$, **$p$<0.05, *** $p$<0.10,*

$^{n.s}$means not significant

## 1.14 Moderating testing (PLS analysis)

A bootstrapping technique, path loadings and t-statistics were run for hypothesized interaction terms were calculated. The results are shown in Fig. 2, and Table 12.The result revealed that the interaction terms between perceived value and service quality dimensions (COCP*MPV, RCMS*MPV, RCMS*NMPV and COCP*NMP) are not a significant. That means that the moderating effect of monetary and non-monetary of perceived value on the relation between dimensions of service quality and patient satisfaction is not significant.

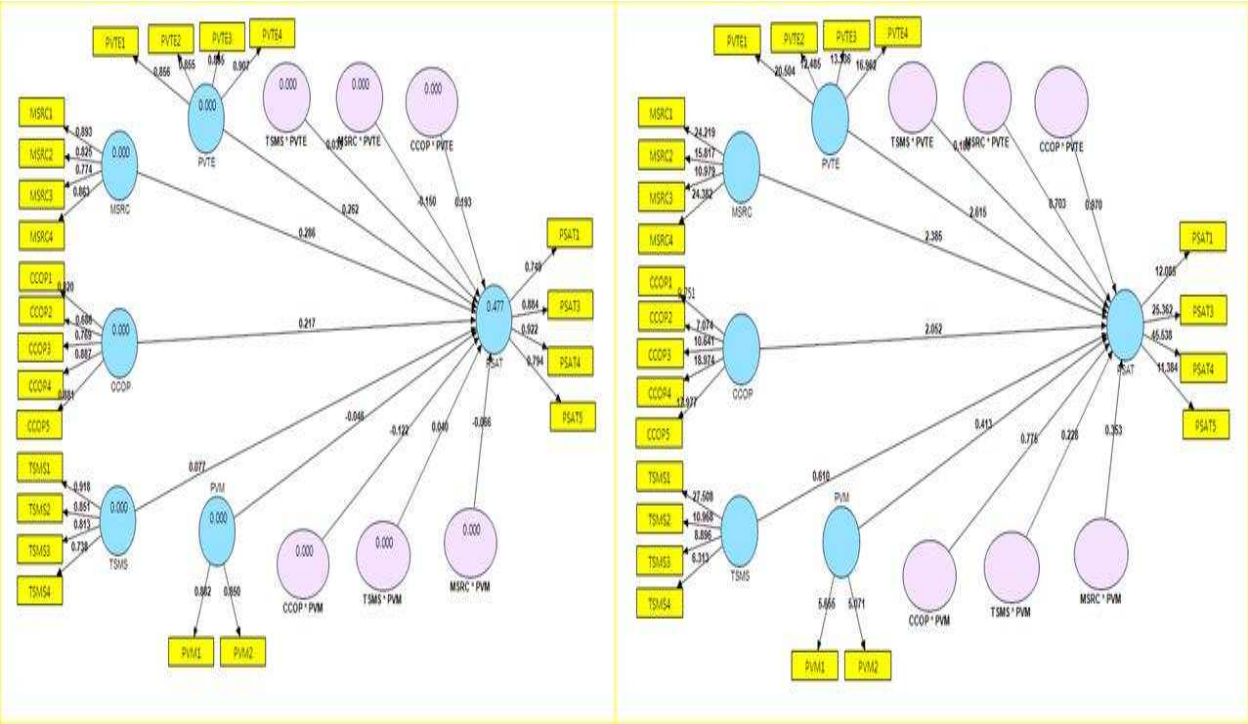

Fig. 2. Coefficients effect and T- statistics for moderating effects

The regression coefficients show that there is no significant regression coefficients for all interaction terms, COCP*MPV (β = -0.12, t < 1 .96), COCP*NMPV (β = 0.19, t < 1.96), MSRC * PVM (β = -0.07, t <1 .96), MSRC * PVTE (β = - 0.15, t < 1 .96), TSMS * PVM (β = 0.04, t < 1 .96) and TSMS * PVTE (β = 0.03, t < 1 .96), in reject of H6. $R^2$ was found to be 0.477 indicating that dimensions of service quality can account for 58% of the variance in the patient satisfaction

Table 12. Interaction Moderating Effect

| Hypothesis | Path coefficient | t statistic | Sig. | $R^2$ |
|---|---|---|---|---|
| CCOP * PVM -> PSAT | -0.12 | 0.77 | n.sig | |
| CCOP * PVTE -> PSAT | 0.19 | 0.97 | n.sig | |
| MSRC * PVM -> PSAT | -0.07 | 0.35 | n.sig | |
| PSAT | | | | 0.477 |
| MSRC * PVTE -> PSAT | -0.15 | 0.70 | n.sig | |
| TSMS * PVM -> PSAT | 0.04 | 0.23 | n.sig | |
| TSMS * PVTE -> PSAT | 0.03 | 0.19 | n.sig | |

n.sig = non-significant

Based on the result from HMR by using SPSS and bootstrapping technique by using PLS, there is no different in the result in both SPSS and PLS. Results of both techniques revealed that perceived value does not effect on the relationship between service quality dimensions and patient satisfaction.

Contrary to the research findings, the literature revealed that monetary of perceived value did have a moderating impact on relationship between service quality dimensions such as (convenience of care process, responsiveness and respect and caring, and assurance) and satisfaction [26]. In addition, this result consisted with [113] research which conducted in public hospitals in Libya; the findings revealed that the time and effort did not moderate the relationship between service quality dimensions and patient satisfaction.However, perceived value can also be a moderator on the relationship between only respect and caring service quality dimensions and satisfaction [32]. The results in current research revealed that, patients think that the service hospitals provide high levels of service quality; it does necessarily results high satisfaction. If, price and time and efforts are perceived to be high this may not effect on satisfaction. Patient satisfaction does depend on service quality alone and higher levels of price or time and efforts of perceived value are not effect on or change the relationship between service quality dimensions such as convenience of care process, respect and caring and trust medical staff with patient satisfaction.

## V. CONCLUSIONS AND IMPLICATIONS

Researchers of perceived value and its relationship with service quality and satisfaction still are drawing in marketing research field. The present study examined the relationship between hospital service quality dimensions and patient satisfaction through price as monetary of perceived value and the time and efforts as non-monetary dimensions of perceived value as the moderator effect. This study includedfive hospital service quality dimensions: environment and technology, convenience of care process, responsiveness, trust and respect and caring in private hospitals in Tripoli, Libya. The current study utilized two approach techniques (SPSS and PLS) for validity, reliability and hypotheses testing.

For achieve the **objective 1** several hypotheses were conducted, testing the hypotheses were conducted. By using SPSS, findings rejected all the hypotheses except for the effect of CCOP on patient satisfaction (H2). However, each of other service quality dimensions such as ENMT, RESP, TSMS and MSRC (H1, H3, H4 andH5) were found to be has not influence on patient satisfaction. By using PLS, findings rejectedtwo hypotheses (H1 and H3).However, each of other service quality dimensions such as CCOP, TSMS and MSRC (H2, H4 andH5) were found to be hasinfluence on patient satisfaction. **Regarding to achieving the objective 2** several hypotheses were tested, In SPSS technique and PLS. Perceived value of both perceived value dimensions do not moderate the relationship between all service quality dimensions with patient satisfaction. Therefore, perceived value may be antecedent variable for patient satisfaction. Based on research objectives and followed by the research findings, this study contribute to better understanding of the service quality dimensions and their impact on patient satisfaction in the context of the private hospitals in Tripoli, Libya. This research is meaningful since the ability to deliver quality services and provide patient satisfaction, especially in the private hospitals units in developing countries like Libya is limited.

The important implications and contributions of the research findings comprise managerial and theoretical implications. This study provides significant impacts on some major aspects: practical contribution, and theoretical contribution. In team of practical contribution, the findings of this research can be employed as a guideline by maker's decision to develop the design and department of service quality program in private hospitals. With respect totheoretical contribution, this study provides several important findings price, time and efforts of perceive value about the use of service quality dimensions such as environment and medical techniques, convenience of care process; responsiveness, respect and caring and trust in delivery healthcare services have not increased patient satisfaction. This finding is not in line with studies conducted of [19; 26; 113; 114]and this result is consistent with studies by [19] and [115]. The findings of the investigation hold important implications for future planning and improvement in Libyan hospitals industry and more specifically, private hospitals. In addition, this study tried to use two types of data analysis techniques (SPSS and PLS). This might encourage new researchers to use new method rather than traditional technique which use one method.

### 1.15 Limitations and Future Research

The conclusion drawn from the results of this study should consider the following limitations. Firstly, this research was a cross-sectional design. Longitudinal method may achieve a better understanding of the effective behavior of the variables analyzed.Secondly, this research only examines the relationships between latent variables (i.e., responsiveness, trust, respect and caring, time and efforts, and patient satisfaction) and the conclusion drawn from this study does not specify the relationship between specific indicators and observes for the independent variable, moderating variable, and dependent variable. Future research may expand in this regard. Thirdly, this research conducted the sample which only represents inpatient in hospitals in a single city and they were chosen by using a convenient sampling technique. It is acknowledged that if it included outpatient it would have been more inclusive. The study was conducted in Tripoli city, but if it was conducted to all cities in Libya it would have been more inclusive. Fourthly**,** the study was conducted in a part of sector which is private hospitals; further research may examine differences of sectors such as public and specialization of hospital, Primary health care units. Although the study is one of the first studies in the Libya which clarified the concept of quality from the patients view in Libya hospitals, it is limited as it did not study the concept of quality from other customer viewpoints as mentioned in limitation of the research. Therefore, perhaps further studies are needed on this issue.

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