The Research of Medical Science Review
ISSN: 3007-1208 & 3007-1216 Volume 3, Issue 7, 2025

PUBLIC SECTOR HOSPITAL SERVICE QUALITY AND PATIENT LOYALTY: MEDIATING ROLE OF PATIENT TRUST IN LAHORE, PAKISTAN

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DOI: https://doi.org/ 10.5281/zenodo.16435253

Keywords
Patients' Trust, Patients' Satisfaction, Patients' Loyalty, Public Healthcare, Patient Safety, Partial Least Square (PLS)

Article History
Received on 20 April 2025
Accepted on 08 July 2025
Published on 23 July 2025

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Abstract
The purpose of this study is to explore the relationship between health care quality and patients' loyalty by using patients' trust as a mediator. This study examines the impact of patient satisfaction, patient safety, physician performance, nursing care performance, and operational service quality on patients' loyalty for public sector hospital. The primary data have been collected by using stratified random sampling. The questionnaires have been received from 259 respondents. The respondents are mostly consisted on patients or their attendants in a public healthcare institution in Lahore, Pakistan. The empirical results shows that there is significant impact of the patients' satisfaction through use of mediation of patients' trust upon patients' loyalty. This study also contributes that there is significant influence of patients' safety through the mediation of patients' trust on patients' loyalty. The study contributes that there is significant impact of perceived physician performance through mediation of the patients' trust on patients' loyalty. The study also contributes that there is no significant impact of nursing performance and operational service quality through mediation of patients' trust on patients' loyalty. Therefore, the outcomes of this research have to be further examined to make sure their stability. The findings of this research can be helpful for the management of healthcare service institutions to ensure patients' loyalty as well as their trust.

INTRODUCTION

The evaluation report by World Health Organization (WHO) upon the health systems' performance focuses on three vital goals: health improvement, fair financing and responsiveness (WHO, 2000). The responsiveness of the health systems revolves around reasonable expectations of persons with non-medical features of health care (Karami & Abadi, 2014); and an interaction of patients in the health system with the environment where they are treated. In present age of swift development, the overall growth of economies of developed countries has become dependent upon service industries (Shabbir et al., 2016), while it is also playing a positive role in developing countries in contributing towards their betterment (Linh Pham, 2011). In services sector, quality of service weighs more than anything which leads to offer enhanced healthcare service quality (Elleuch, 2008).

As per relationship marketing researchers patient loyalty has become an important construct in the competitive environment of business (Morgan & Hunt, 1994). The quality of health care service provides competitive edge with the help of improvement in technology (Chang et al., 2013). Henceforth, the patients valuing the relationships tend to be devoted with certain healthcare service provider (Kessler &Mylod, 2011). The mushroom growth in healthcare facilities and services in the developed and developing nations in the past decade or so has resulted into cut throat competition among the public and private hospitals as well as nursing home. At similar point in time, the emerging nations have raised their level of education, reduced their irregular and unhealthy food consumption, income levels have improved, and better awareness and sophistications concerning health-related issues have increased requirements for specialized and healthcare quality. This has prompted the health-care marketers and administrators of hospitals to comprehend the issues that prompt a patient to make a choice about their specific health-related issues (Trivedi & Jagani, 2018).The healthcare services industry has gone through noteworthy changes in current times to keep abreast with service oriented expectations from patients, rising competition, demanding better accountability and upcoming trends related to health and wellbeing. In recent times, the healthcare services industry has gone through momentous shifts i.e. moving towards patient oriented approach instead of the doctor-driven approach (Haque, 2021).

Nonetheless, the hospital paying less heed to deliver service quality and customer satisfaction are unable to understand its importance which could result in a likely lesser turnover of patients (Andaleeb, 1998; Padma et, al., 2010). Any hospital aiming to supply better service quality that leads to better economy which further results in economic development (Andaleeb, 2000; Karydis et al., 2001). In the emerging countries such as Pakistan, both the private and public sectors' hospitals have primary responsibility to offer healthcare services for the citizens. Both of these segments provide variety of facilities depending upon their background, work culture, operation, structure and efficiency. As compared to different countries; Pakistan has laid down major emphasis to increase the healthcare quality services. In order to gain competitive edge over competitors there is a need to provide better service quality; therefore it is vital to analyze the differences in perceptions of the patients with regards to quality of healthcare services being delivered by both private and public sector hospitals. In that regard patients' perceptions has a direct impact on the decision for choosing a hospital (Arasli et al., 2008) and ultimately, this directly effects loyalty and satisfaction of patients across several hospitals.

The health sector system of Pakistan comprises of private and public health facilities. The public sector health facilities are supplied through a well-recognized network of dispensaries, Basic Health Units (BHU), Rural Health Centers (RHC), Tehsil and District head quarter hospitals and allied medical professionals at federal, provincial and district levels (Economic Survey of Pakistan, 2022-23). Health department ensures delivery of primitive, preventive and curative health services from primary and secondary health care level to the tertiary health care level. In Pakistan, budgeted expenditure on health is on the lower side but has been gradually rising. The country has been spending in the range of 0.5 to 0.8 percent of Gross Domestic Product (GDP) for health during the last 10 years. The WHO benchmark is 6 percent of GDP whereas these proportions are below the WHO benchmark required to provide basic and lifesaving services. The total expenditure improved by 3.29 percent during 2018-19 than the year 2017-18, while during the present fiscal year (July-March) 2018-19, Rs.179.72 billion were incurred as the expenditure thereby a 19.84 percent increase over the corresponding period of last year. As per the latest report by World Bank, per capita, spending on health in Pakistan is $14.34 billion which is quite lower than the World Health Organization's benchmark of US$ 86 for low-income countries (Economic Surveys of Pakistan, 2025-26). In Pakistan, health expenditure as a percentage of GDP is relatively low, fluctuating around 2.91% in recent years see figure-1 below. This figure is below the WHO recommendation of 6%. A significant portion of this spending is from private sources, with a large percentage of that being out-of-pocket expenditures (Ul Rehman et al., 2023, Ahmad, & Senturk, 2021).

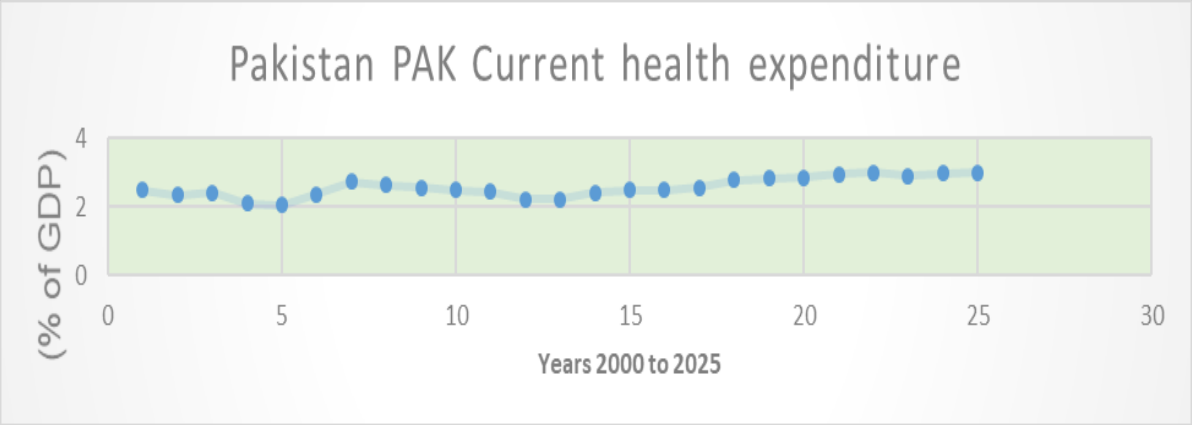

Figure-1 Health sector expenditure of Pakistan

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As per study conducted by Semyonov-Tal (2024), they recommended that future research to focus on how patients’ choice is influenced by the treatment given by physician in the hospital and trust shown by the patient in the physician while recommending a hospital. Another study by Zhou et.al, (2017), concluded that results of direct impact of satisfaction, quality and value on loyalty were conflicting and recommended further research on influence of trust on loyalty. In the present study Wartiningsih et al., (2020) they have tried to address this gap by using Patients’ Trust as mediator to study the relationship of Patients’ Loyalty with overall service quality (Patients’ Satisfaction, Patients’ Safety, Physician Performance, Nursing Care Performance and Operational Service Quality.

In the developing world, most of the high income patients are losing trust in public sector hospitals. They prefer private over the public hospitals. Since, patient loyalty is a key successful factor in hospital sector; therefore, there is a dire need to investigate impact of the factors critical to overall healthcare service quality at public sector hospitals. The main research objective to examine the relationship between patient satisfaction, patient safety, physician performance, nursing care performance and operational service quality with patients’ loyalty. To investigate the link between patients’ trust and patients’ loyalty. To investigate the mediating effect of patients’ trust between patient satisfaction, patient safety, physician performance, and nursing care performance and operational service quality and patient loyalty. The subsequent research questions will be addressed by this study. What is the relationship between elements of overall service quality like patients’ satisfaction, patients’ safety, physician performance, nursing care performance and operational service quality with patients’ loyalty in hospitals? Is there any mediation effect of patient trust in the relationship of patient satisfaction, patient safety, and physician performance, nursing care performance and operational service quality with patient loyalty?

II. Literature Review

This section will elaborate the impact of patients’ satisfaction, patients’ safety and overall service quality with respect to patients’ loyalty in hospitals. The mediating role of patients’ trust will also be studied. The literature is based upon previous studies conducted by different authors in a certain period of time**.** The hypothesis is then developed upon studying the impact of these dimensions on patients’ loyalty. To promote health information literacy (HIL), health knowledge is considered important and healthy behavior is helpful in constructing the base of health knowledge and in taking better health decisions in daily life (Eriksson-Backa et al., 2012 and Enwald et al., 2016). Patients understanding about their health and treatment options, taking responsibility about improving and managing their health and living a better life can be improved by health knowledge (Bahrampour et al., 2018; Huo, 2018). Gremler and Brown (1996) have argued that loyalty of customer plays a vital role in the provision of services which helps in developing businesses. Zhou et al. (2017) identify the determinants of patient loyalty, which are closely linked with healthcare service providers’

earnings and outcomes of patients' health. The patient loyalty positively influences the quality, satisfaction, and value (Zeithaml et, al., 2008; Chang et, al., 2013). As far as healthcare institution is concerned, loyalty is defined as profound commitment of patients continually employed or choosing a certain healthcare service provider among the other alternatives available to them (Chang et al., 2013; Nguyen et al., 2021).

Besides, as healthcare service is prone to high risks that ultimately lead to profitability, therefore, perceived value and trust play an important role in explaining patient loyalty (Moliner, 2009). There is a positive influence of value, hospital brand image, trust, satisfaction, quality and commitment upon patient loyalty (Kessler and Mylod, 2011; Wei-Jiao Zhou, et.al 2017 and Bezerra et al., 2022). It is a general belief that customers will be more loyal if they are satisfied. The demand for raising the standard of service quality has made government policymakers, hospital administrators and researchers to gird up their loins and take far-reaching actions for building patients' satisfaction and loyalty towards their service providers. Therefore, in services marketing literature, the topic of service quality and its upshots has gained a substantial momentum over the past three decades (Bauman et.al 2017; and Shie et al., 2022).

Patient trust has association with better health outcomes, higher is the patient satisfaction; lower will be levels of emotional discomfort. Conversely, patients having a lower level of trust in their physician are often less satisfied, and are less likely to adhere to physicians' advice, and there will also be little likelihood that they will report any improvement (Gopichandran and Chetlapalli, 2013). It has been indicated that within a hospital trust is formed in close linkage within the hospital ward, which is significantly influenced by the administrator. The lack of trust undermines teamwork as well (Wahyuningsih et al., 2023; Marisya et al., 2024; Hussain et al., 2025). Another significant work by Huo, et.al (2018) examine mediating role by trust to explore the adoption procedure in health knowledge, thereby finding a limited mediating effect in the association between health knowledge adoption and perceived knowledge quality, as well as two full mediating effects on the linkage between the perceived knowledge consensus, perceived source credibility, and health knowledge adoption. An empirical survey on hospital inpatients is carried out and deduced that perceived healthcare quality by patients has a positive and direct impact upon trust (Lien et.al, 2014). Patients must have a belief that the healthcare provider is concerned about their betterment thus providing them the best available treatments (Silva et. al, 2018). Patient care and institutions can have positive effects from the organizational trust. It is considered helpful in preventing employee turnover (Nguyen & Nagase 2021).

Impact of satisfaction on the choice of hospital is particularly important as research shows a correlation between patient satisfaction and healthcare service quality. In any service industry satisfaction is a major concept which helps to achieve market share, earnings and maximizing the intentions of customer to revisit the place. (Ramli, 2015; Shabbir, et.al, 2017). As more stress is laid upon needs of patient and their satisfaction, it enables healthcare providers to improve the quality, and it also allows them to provide health care that is safe, patient-centered, timely, effective, efficient and equitable (O'Sullivan, et.al, 2015; Maphumulo et.al, 2019). A major component of the healthcare sector is the services rendered by hospitals. As a result, patients' satisfaction with the services plays key role in success of hospitals (Sadeh, 2017; Mahboub et.al, 2018; Wijaya et.al, 2019; Arman et al., 2023). The user satisfaction considerably affects hospital reputation and hence it is an important measure for service quality (Nottingham et.al, 2018; Silva et.al, 2018). The patient feels important and works for compliance with the treatment when the requirements and demands are complied with through nursing care. This is why patient satisfaction adds to the improvement of health and quality of life. Evaluation of data about patient satisfaction can make continuous improvements in the quality of care. (Kol et.al, 2018). As patient have to spend some days in hospital, clean environment reduces the chances of infection so will be more healthy and patient will feel comfortable (Bharampour et.al, 2018).

Patient Safety is defined as liberty from any accidental injury during the medical care or arising from medical errors is now becoming a vital topic in medicine. The blend of individual and group values, penetration and beliefs, behavioral patterns and competencies which shows devotion by an organization towards health and

safety management is termed as patient safety culture (Stock, et al., 2017). They contributed in the healthcare operations literature by explaining the applicability of HRO theory with safety environment in the context of hospital operations and hospital performance. Further, studies have established positive associations between patient outcomes, patient safety culture, and experience of patient with hospital care (Joanne Campione, 2018). The care delivery system that prevents errors is much emphasized; system should learn from the errors that occur, and system should focus on safety culture that involves organizations' health care professionals, and patients (Elsheikh et.al, 2017; Walston et al 2010). Patient safety depends on a strong and positive culture which includes realization of patient safety, teamwork, communication, and working environment in the healthcare organization (Ahmed et.al, 2019, Jamil et al., 2016).

Current study is limited to the safety climate perspective. Many researchers would be agreeing that to understand and improve the safety of patient, system approach should be used. The support staff and handovers should work together effectively from higher level to lower one, i.e. where patient interact with nurses in daily routine. Doctors get motivated by power and achievements instead of affection and affiliation with patient; this is because prior to becoming doctors they strive for grades. Therefore, competing with others is more important than cooperation. Hence teamwork, cooperation and support are rare in hospital culture. (Olsen, 2018).

III. Research methodology

The nature of the study will be contemporary. The research setting will not be a contrived one as quantitative research methodology will be performed with the use of survey questionnaire. The quantitative research method produces measureable, realistic, un-biased, objective, and generalized results in the natural setting (Chang et al., 2016)

The aim of the study was to measure patient loyalty by studying the impact of patients' satisfaction, patients' safety, and overall quality of the service with the mediating role of patient trust in public sector hospital in Lahore. The study was conducted in three Public Sector hospital in Lahore, Punjab. Mayo Hospital, Services Hospital and General Hospital, Lahore currently has bed capacity of approximately 2400, 2000 and 1900 beds thus making it the largest Government run health facility in Punjab. Target population was indoor patients admitted in this hospitals were approached for data collection from different units/wards in the said hospital. The data was collected via stratified random sampling technique from only admitted patients as they underwent a deep process and experienced the services which are offered by the hospitals. With the exception of intensive care unit (ICU), psychiatrist, children and emergency ward, patients admitted in other wards were approached randomly and were taken as strata.

The collected sample size was 350 respondents from Mayo hospital, Services Hospital and General Hospital based on the guiding principle as provided by Krejcie and Morgan (1970). Data was collected through already developed well designed measurement scales of all the variables of this study. A five-point scale was used to measure the items, on 1 for strongly agree to 5 for strongly disagree. The research has been conducted in one healthcare service institution i.e. Mayo Hospital, Services Hospital and General Hospital Lahore by using stratified random sampling. In present study Quantitative approach has been used where a researcher collects the data and then develops the theory based upon it. This method deduced generalization from the observation of social reality. Quantitative data gathering methods are used in an inductive approach thus, there is less significance given to the generalization of research findings. It employs a small sample size. In this study the following variables have been used in this research study.

Patient Loyalty is defined as profound commitment of patients continually employed or choosing a certain healthcare service provider among the other alternatives available to them (Chang et al., 2013; Moliner, 2009).

Patient trust is referred as the confidence shown by patients that how a certain healthcare service supplier would meet its expectation (Moliner, 2009).

Patient Safety is defined as liberty from any accidental injury during the medical care or arising from medical

errors is now becoming a vital topic in medicine." (Walston, et.al, 2010).

Patient Satisfaction, the personal control theory, has explained the satisfaction being based upon a perception of person's life or work experience achieved through psychological comparisons between desired outcomes and actions (Ramli, 2015,).

Physician Performance: It is the method of assessment applied and quality of care being delivered by the physician determines the performance of physicians" (Arman et al., 2023)

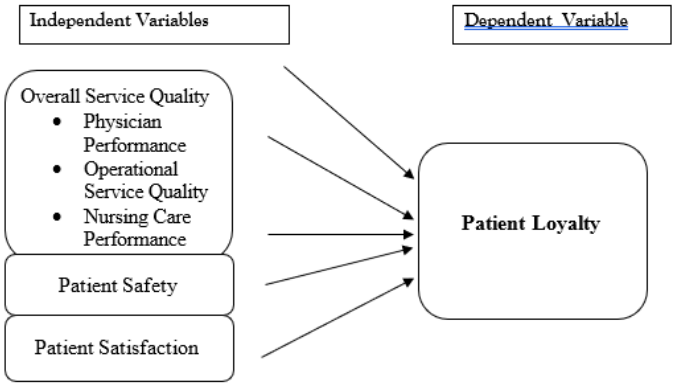
Nursing Care Performance: Tafreshi et al. (2007) defined the nursing care as "meeting the set nursing standards by delivering the safety care which results in patient satisfaction".

Operational Service Quality: The process for admission in the hospital, maintaining personal files, regular check-up record, the procedure for translucent submission of bills, and any other managerial function (Bezerra et al, 2024).

3.1 Statistical technique

Structured questionnaires were used to obtain feedback from the participants. Questionnaires are conveniently and quickly managed. They provide a large amount of data at a lower cost. The response rate can be enhanced with the hand delivery of questionnaires. It permits anonymity that encourages the respondents to express their opinions freely. Questionnaires are easier for participants to complete as they are not time consuming. Therefore, the utilization of questionnaires is the best method, as they keep privacy, can target number of population, reduces biasness, saves time and are affordable. The instruments comprise of five different variables and were responded on five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree).

In quantitative research**,** assessment of measurement model is the first step which should be carried out by the researcher to authenticate the model along with reliability analysis. Reliability refers to as the ability of the model to generate the consistent results over several attempts using partial least square (PLS). For structural equation modeling technique, it requires the confirmation of indicator reliability, measurement of Cronbach alpha and composite reliability analysis. Further, validity of each construct is also required to be measured to ensure that each construct provide the valid information which the same intended to provide. It involves convergent validity analysis as well as discriminant validity analysis. Convergent validity analysis ensures the validity of each construct against its indicators or dimensions while discriminant validity provides the information regarding the discrimination between the construct to ensure both are not uni-dimensional. Thus, convergent validity is the assessment of relatedness while discriminant validity explains their relatedness. Thus, all the measurements of assessment of measurement model including reliability and validity analysis has been carried out, so the efficacy of data may be ensured while carrying out the analysis and concluding the findings



Theoretical Model-Abstract Level

Hypotheses Development Abstract Model and

H1. There is a significant positive relationship between Patients' Safety and Patients' Loyalty.

A general concord prevails that loyalty comes as a result of customers' satisfaction because it has been proved in different ways that if patients feel satisfied

with a service delivered by a hospital, they will want to avail that service again in nearby future. The more satisfied customers are with the services, the more they would be loyal to the hospitals so Kessler and Mylod (2011) concluded that there exists a positive correlation between satisfaction of patients and their loyalty. So our second hypothesis is about this relationship.

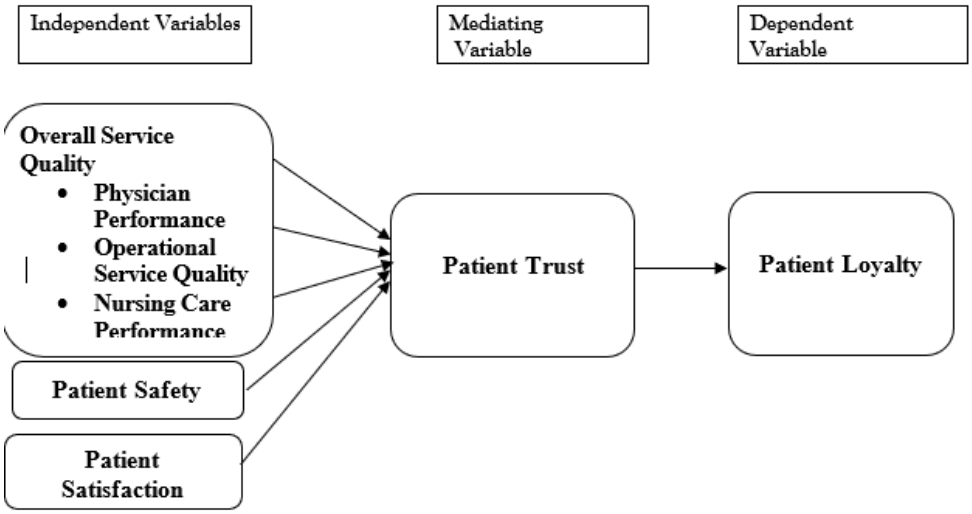
H2. "There is a significant positive relationship between patients' satisfaction and patients' Loyalty"

The loyalty of customers is related to the better service quality in a direct aspect while on the other hand in indirect aspect, the loyalty is the resultant of the satisfaction of customers which they get in the response of better service quality. Several researchers have studied about various endeavors which show that service quality is a predecessor to behavioral intensions. (Taqdees Fatima, 2018).Thus, we develop our next hypothesis as:

H3. "There is significant positive relationship between Physician Performance and Patients' Loyalty"

H4. "There is significant positive relationship between Nursing Care Performance and Patients' Loyalty"

H5. "There is significant positive relationship between Operational Service Quality and Patients' Loyalty"



Theoretical Model-Manifest Level

H_6. "There is a significant positive relationship between patient's safety and patients' trust".

H_7. "There is significant positive relationship between patient's satisfaction and patient trust."

H_8. "There is significant positive relationship between Physician Performance and Patients' Loyalty"

H_9. "There is significant positive relationship between Nursing Care Performance and Patients' Loyalty"

H_{10}. "There is significant positive relationship between Operational Service Quality and Patients' Loyalty"

H_{11}. "There is a significant relationship between patient's trust and patient's loyalty."

H_{12}.The relationship between Patients' safety and Patient's loyalty will be positively mediated by Patients' trust.

H_{13}. The relationship between Patients' satisfaction and Patient's loyalty will be positively mediated by Patients' trust.

H_{14}. "The relationship between Physician Performance and Patients' Loyalty will be positively mediated by Patients' Trust"

H_{15}. "The relationship between Nursing Care Performance and Patients' Loyalty will be positively mediated by Patients' Trust"

H_{16}. "The relationship between Operational Service and Patients' Loyalty will be positively mediated by Patients' Trust"

Thus, to collect data stratified random sampling has been based upon the fact respondents who are admitted in hospital. The questionnaire was distributed to 350 patients and through emails and sending printed questionnaires. Further personal

visits were also done for collecting the data. A comprehensive follow-up be means of phone calls and visits yielded to obtain 259 responses on structured questionnaire with a response rate of 74%.

IV. Results and discussion

Table 1 demonstrates the demographics of the patients and their attendants, admitted in Mayo Hospital getting treatment of their ailment. In the present study total 259 questionnaires were completed out of 350 which were distributed to respondents. Out of 259 completed questionnaires 80 were within the age range below 30. 44 respondents were within the age range of 31-35 and 135 each were within the range of 36-40 and above 40 respectively. Furthermore, in the present study male dominancy has been observed, as most of the respondents were male (75.8% male & 24.2% females). Further information was obtained about the education level of the respondents 50 out of 259 were master's degree holder and most of the respondents were having study below Graduate level as their ratio was around 38% of the total respondents i.e. 100 out of 259. In addition of this 21.2% respondents were having 1-3 years working experience and 24.4% respondents having above 5 years working experience.

Table 1 Demographic Description of Respondents

Demographic	Demographic Features	Frequency	Percentage
Gender	Male	196	75.8%
	Female	63	24.2%
	Total	**259**	**100%**
Marital Status	Married	137	52.8%
	Unmarried	122	47.2%
	Total	**259**	**100%**
Working Experience	Less than 1 year	58	7.2%
	1-3 years	78	21.2%
	3-5 years	43	24.4%
	Above 5 years	80	30.4%
	Total	**259**	**100%**
Education level	Intermediate	70	27.02%
	Graduation	90	34.74%
	Master	37	14.29%
	MPhil/PHD	10	3.8%
	Others	52	20.0%
	Total	**259**	**100%**
Age	Below 30	45	58.8%
	31-35	56	18.0%
	36-40	76	11.6%
	Above 40	82	11.6%
	Total	**259**	**100%**

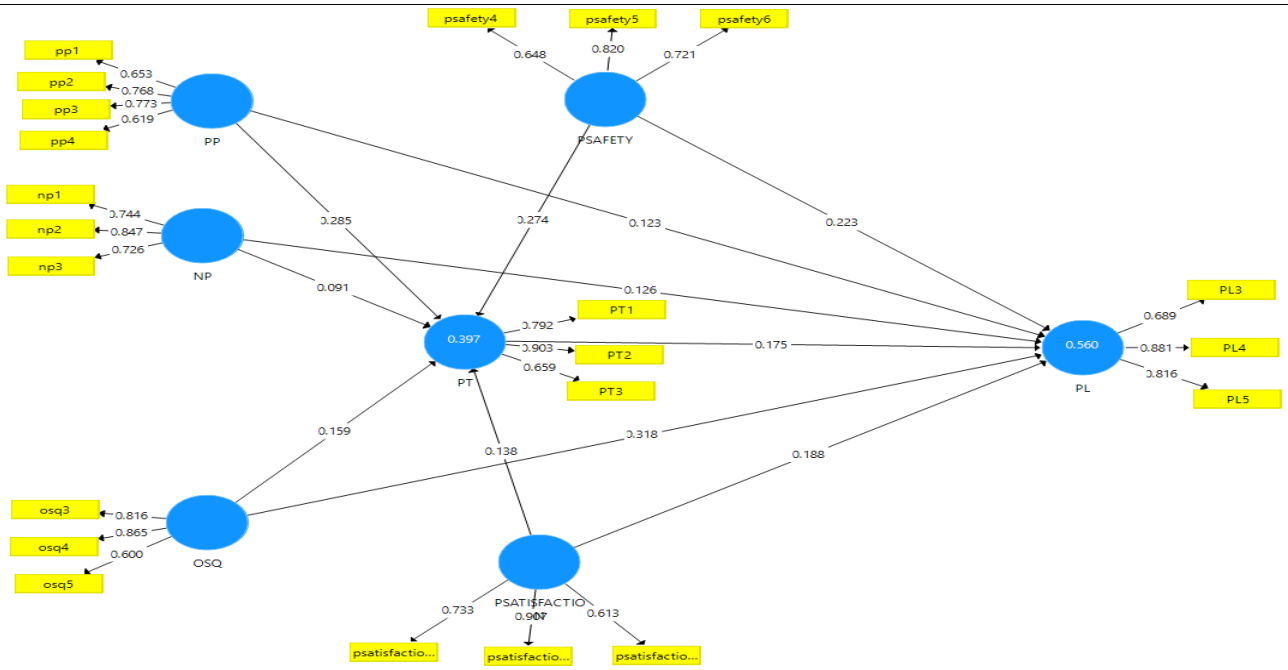


Figure-2 Evaluation of measuring model

Convergent and discriminant validity was computed to evaluate measurement model. The current study has used Fornell & Larcker (1981) suggested criteria for measuring convergent validity. They suggested that outer loadings of measuring items of each construct must be greater than 0.70 composite reliability of all variables exceed from 0.80 and AVE of all variables must exceed from 0.50. Cronbach Alpha of each variable must exceed from 0.70. The empirical results are reported in figure-2 and figure-3.

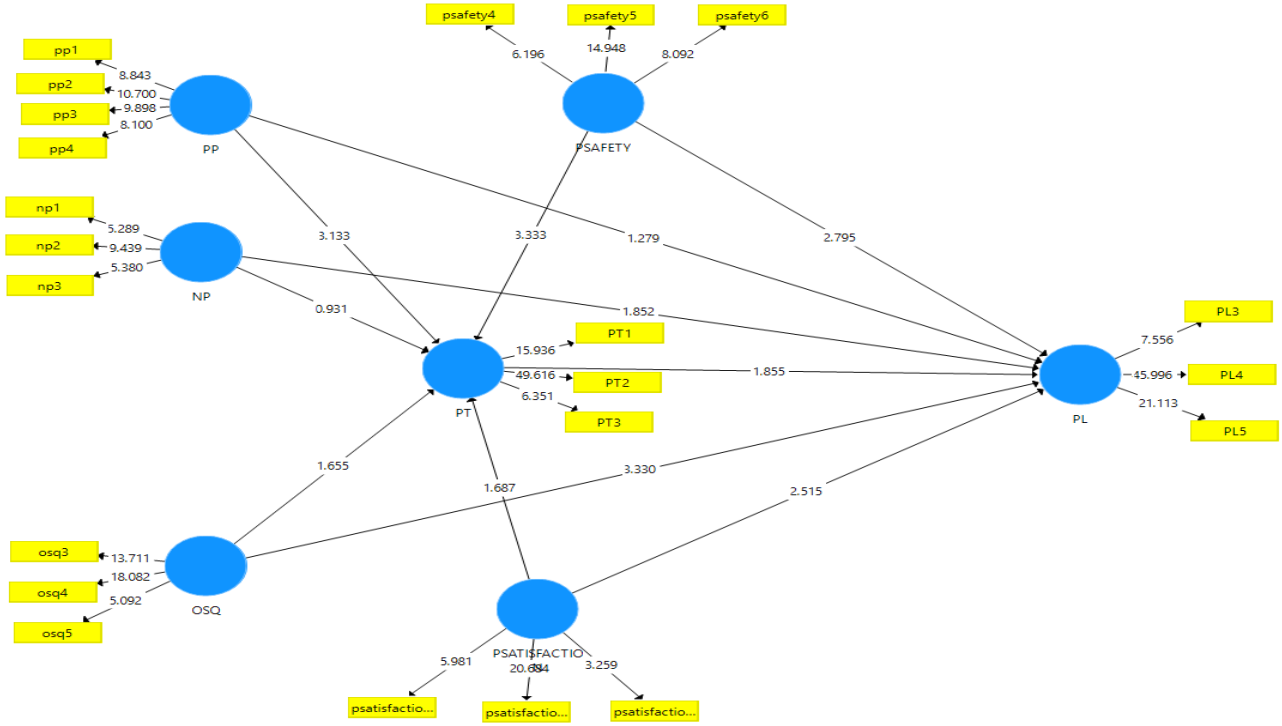


Figure-3 Evaluation of measuring model

Table-2 shows the CFA analysis all the above-mentioned criteria as suggested by Fornell & Larcker (1981) is completely fulfilled which means that measurement model of this study meets convergent validity.

Table 2: Confirmatory Factor Analysis:

Constructs	Items	Loadings	Alpha	CR	AVE
NP	NP1	0.744	0.715	0.814	0.596
	NP2	0.847			
	NP3	0.726			
OSQ	OSQ3	0.816	0.741	0.809	0.591
	OSQ4	0.865			
	OSQ5	0.600			
PL	PL3	0.689	0.713	0.838	0.636
	PL4	0.881			
	PL5	0.816			
PP	PP1	0.653	0.779	0.794	0.493
	PP2	0.768			
	PP3	0.773			
	PP4	0.619			
PSAFETY	PSAFETY4	0.648	0.561	0.775	0.536
	PSAFETY5	0.820			
	PSAFETY6	0.721			
PSATISFACTION	PSATISFACTION3	0.733	0.795	0.801	0.579
	PSATISFACTION4	0.907			
	PSATISFACTION5	0.613			
PT	PT1	0.792	0.801	0.831	0.625
	PT2	0.903			
	PT3	0.659			

Note- Nursing Performance (NP), Operational Service Quality (OSQ), Patients' Loyalty,(PL) Physician Performance (PP), Patients' Safety (PSAFETY), Patients Satisfaction and Patients'(PSATISFACTION), and Patients' Trust (PT).

As in above mentioned table 2 values of loadings are above 0.60 if the values of loadings are below 0.60 it must be removed Chin (1998). So, there is no need to remove any value and all items are strongly correlated with their respective construct. Loading values greater than 0.60 has been selected is recommended by Hair (2013). The convergent and discriminant validity helps to establish construct validity. It explains the linkage of measurement items with the construct. The three tests that confirm convergent validity are composite reliability, item reliability and average variance extracted (AVE). Loading values tell us about the indicators that need to be considered, or which should not be considered. Thus, the items not achieving the principle for loading values will be eliminated; in this case all items are having values more than 0.60 so no value is excluded. The reliability of constructs tells us about the consistency of the results with the help of loading values. The variables having more than 0.70 value for composite reliability must be considered. In our case all values are greater than 0.80. In above table Cronbach alpha values are also shown and these values must be greater than or equal to 0.70. As all the values of Cronbach alpha are more than 0.70 in the above table hence this confirms the reliability of constructs.

As in the last column AVE is also shown which provide us information about the convergent validity. (Convergent validity is that type of validity which measures to find existence of theoretical inter-relationship of the indicators). AVE explains the value of variance in a construct with respect to its relative

items and amount of variation which exists due to measurement error. Hence, all AVE values in above table are greater than 0.50. Hence, we can conclude that each constructs have acceptable convergent validity.

Discriminant validity of the construct are calculated which shows the accurate relationship among latent variables. It is a combination of both square root of AVE and correlation of constructs under consideration (Yep, et al., 2012). The value of discriminant validity must exceed 0.50 (greater equal to 0.50) (Fornell & Lacker 1981).

Table 3: Discriminant Validity:

	NP	OSQ	PL	PP	PSAFETY	PSATISFACTION	PT
NP	**0.772**						
OSQ	0.276	**0.768**					
PL	0.294	0.583	**0.797**				
PP	0.216	0.459	0.532	**0.702**			
PSAFETY	0.014	0.254	0.445	0.38	**0.732**		
PSATISFACTION	0.107	0.266	0.391	0.29	0.089	**0.761**	
PT	0.227	0.42	0.564	0.537	0.441	0.299	**0.791**

Note- Nursing Performance (NP), Operational Service Quality (OSQ), Patients' Loyalty,(PL) Physician Performance (PP), Patients' Safety (PSAFETY), Patients Satisfaction and Patients'(PSATISFACTION), and Patients' Trust (PT).

The above-mentioned table elaborated that all constructs are having value above 0.50. The values of Nursing Performance, Operational Service Quality, Patients' Loyalty, Physician Performance, Patients' Safety, Patients Satisfaction and Patients' Trust are 0.772, 0.768, 0.797, 0.702, 0.732, 0.761 & 0.791 respectively. Value of each construct is larger than the values off-diagonal form confirms the existence of discriminant validity of each construct (Fornell & Larcker 1981).

Table 4: Heterotrait-Monotrait Ratio:

	PL	OSQ	NP	PP	PSAFETY	PSATISFACTION	PT
PL							
OSQ	0.417						
NP	0.427	0.867					
PP	0.311	0.715	0.757				
PSAFETY	0.176	0.433	0.691	0.621			
PSATISFACTION	0.203	0.408	0.579	0.466	0.386		
PT	0.318	0.635	0.773	0.756	0.704	0.434	

Note- Nursing Performance (NP), Operational Service Quality (OSQ), Patients' Loyalty,(PL) Physician Performance (PP), Patients' Safety (PSAFETY), Patients Satisfaction and Patients'(PSATISFACTION), and Patients' Trust (PT).

Heterotrait Monotrait Ratio (HTMT) values must be below 0.9 so in our case as above table is showing that all values are below 0.90 which means that discriminant validity is established between the two constructs (Henseler,et.al, 2015).

Table 5: Cross Loading:

	PL	PT	NP	OSQ	PP	PSAFETY	PSATISFACTION
PL3	**0.689**	0.334	0.181	0.402	0.374	0.222	0.368
PL4	**0.881**	0.435	0.267	0.529	0.446	0.472	0.273
PL5	**0.816**	0.545	0.265	0.467	0.444	0.352	0.319
PT1	0.481	**0.792**	0.139	0.363	0.406	0.365	0.279
PT2	0.500	**0.903**	0.209	0.347	0.446	0.369	0.237
PT3	0.310	**0.659**	0.167	0.280	0.394	0.303	0.183
np1	0.187	0.215	**0.744**	0.230	0.132	-0.054	0.070
np2	0.227	0.118	**0.847**	0.161	0.073	-0.001	0.044
np3	0.273	0.162	**0.726**	0.221	0.263	0.102	0.117
osq3	0.435	0.323	0.080	**0.816**	0.365	0.187	0.233
osq4	0.517	0.346	0.226	**0.865**	0.411	0.145	0.177
osq5	0.387	0.295	0.324	**0.600**	0.273	0.259	0.194
pp1	0.392	0.451	0.243	0.147	**0.653**	0.323	0.049
pp2	0.317	0.302	0.262	0.353	**0.768**	0.196	0.174
pp3	0.404	0.279	0.058	0.358	**0.773**	0.379	0.305
pp4	0.352	0.399	0.030	0.457	**0.619**	0.167	0.314
psafety4	0.315	0.312	0.080	0.208	0.275	**0.648**	0.330
psafety5	0.339	0.299	-0.028	0.169	0.307	**0.820**	-0.083
psafety6	0.324	0.349	0.007	0.171	0.263	**0.721**	-0.035
psatisfaction3	0.284	0.183	0.075	0.113	0.173	0.118	**0.733**
psatisfaction4	0.386	0.300	0.009	0.277	0.298	0.108	**0.907**
psatisfaction5	0.191	0.173	0.226	0.183	0.177	-0.055	**0.613**

Furthermore, in table 5 cross loading of variables is being determined by their cross loading across the diagonal as the table shows that constructs items values in each case is greater than cross-loading values of other variable's items. Hence outcomes of both the test indicates there is significant presence of discriminant validity among all variables grounded on the evidence of cross loading and diagonal square root value of AVE criterion.

PLS Path Modeling

In the following section hypotheses are tested. After boot strapping, the path coefficients are investigated to find the significance level which narrates the nature and strength of the relationships among the variables. Similarly, t-test supports the results. According to the table presented below, the relationships among the variables are supported and significant.

Table 7: Testing (Direct Effects)

	Hypothesis	Beta Coefficient	Sample Mean	Standard Deviation	T Statistics	P Value	Supported/Not Supported
NP→PL	H_4	1.852	**0.065**	**0.050**	**1.151**	**0.250**	Not Supported
NP → PT	H_9	0.931	**0.115**	**0.087**	**1.184**	**0.237**	Not Supported
OSQ → PL	H_5	3.330	**0.088**	**0.054**	**1.526**	**0.128**	Not Supported
OSQ → PT	H_{10}	1.655	**0.154**	**0.090**	**1.632**	**0.103**	Not Supported
PP → PL	H_3	1.279	0.175	0.050	3.384	0.001	Supported
PP → PT	H	3.133	0.309	0.081	3.736	0.000	Supported
PSAFETY →PL	H_1	2.795	0.159	0.054	2.900	0.004	Supported
PSAFETY → PT	H_6	3.333	0.279	0.082	3.373	0.001	Supported

PSATISFACTION → PL	H_2	2.515	0.082	0.043	2.101	0.004	Supported
PSATISFACTION → PT	H_7	1.687	0.145	0.074	2.120	0.003	Supported
PT → PL	H_{11}	1.855	0.568	0.068	8.286	0.000	Supported

Above table-7 shows the results of direct effect. Following is the criteria to be checked before it is accepted or rejected as suggested by P value should be less than 0.05 Neyman-Pearson, suggested by Sverdrup (1996) T statistic should be more than 1.96. As above table elaborates the results and it shows that relation of Nursing care performance with patient loyalty and patient trust is not supported. Similar, results are being shown while checking the results for operational service quality with patients' trust and patients' loyalty. In both instances, results are not supported as per the given criteria whereas; all other direct relation results are supported as per the criteria. As Physician Performance has direct relationship with Patients' Trust having P value as 0.0001 and T statistic as 3.384 and values for relationship with Patients' Loyalty is P value as 0.000 and T statistic to be 3.736. The relationship of Patients' safety with Patients' loyalty having P value 0.001 and T statistic to be and trust falls within the criteria and is supported by our research. Similarly, patients trust and patients' loyalty has a significant direct relation as P value is 0.000 (less than 0.05) and T statistic is 8.286 which is more than 1.96 our established criteria.

Table 8: Testing (Indirect Effects / Mediation Effect)

	Hypothesis	Beta Coefficient	Sample Mean	Standard Deviation	T Statistics	P Value	Supported/Not Supported
NP → PT → PL	H_{15}	1.727	0.065	0.050	1.151	0.250	Not Supported
OSQ → PT → PL	H_{16}	3.070	0.088	0.054	1.526	0.128	Not Supported
PP →PT→ PL	H_{14}	5.811	0.175	0.050	3.384	0.001	Supported
PSAFETY →PT → PL	H_{12}	6.182	0.159	0.054	2.900	0.004	Supported
PSATISFACTION → PT → PL	H_{13}	3.129	0.082	0.043	2.101	0.004	Supported

Note- Nursing Performance (NP), Operational Service Quality (OSQ), Patients' Loyalty, (PL) Physician Performance (PP), Patients' Safety (PSAFETY), Patients Satisfaction and Patients'(PSATISFACTION), and Patients' Trust (PT). Testing of hypothesis P value must be lesser than 0.05 (Neyman-Pearson, 1966) and T statistic should be more than 1.96

In order to examine the implication of mediation and further checking that whether mediation is full, partial or no mediation we can deduce results from table-8 as it shows the results of specific Indirect Effect/Mediating Effects. Following is the criteria to be checked before it is supported or not supported. As above table elaborates the results and all the results are fulfilling the criteria. The Indirect path/Mediating results between PP → PT → PL is highly significant (Beta=5.811, T-value =3.384 and p value is less than 0.05 in the same way PSAFETY → PT → PL mediating results are also significant (Beta=6.182, T-value=2.900 and p value is less than 0.05 and in the last mediation results between PSATISFACTION → PT → PL is significant as (Beta=3.129, T-value=2.101 and p value is less than 0.05. so, in our study mediation exist among mentioned variables. Whereas, the mediation results for variable NP→PT→PL and OSQ→PT→PL is not fulfilling the criteria as in both cases P value is more than 0.05 and T statistic is more than 1.96.

V. Conclusions and suggestions

In the present era the concept of survival of the fittest reigns supreme so in order to survive in the cutthroat competition between the providers, all government healthcare facilities need to understand the choices of consumers and pay heed to the demands and wishes of patients using the hospital services. The ultimate goal of any healthcare service provider should be

patient satisfaction, safety, trust and loyalty by providing top quality services through doctors, nurses and other para- medical staff working there and this will further improve their brand image leading to earn good reputation among general masses. To conclude, though the state of facilities in Mayo Hospital, Services Hospital and General Hospital Lahore has improved over the last few years but as analyzed by this study it still needs improvement in order to make patients feel comfortable while visiting the said health facility.

This study main finding of this work is patient satisfaction, physician Performance, Patient Safety have direct impact on patient loyalty and patients Trust also mediates the relationship between satisfaction, physician performance and patient safety with patients loyalty the followings, there is significant impact of the patients' satisfaction through use of mediation of patients' trust upon patients' loyalty. This study also contributes that there is significant influence of patients' safety through the mediation of patients' trust on patients' loyalty. There is significant impact of perceived Physician Performance through mediation of the patients' trust on patients' loyalty. The study contributes that there is no significant impact of nursing performance and operational service quality through mediation of patients' trust on patients' loyalty. This study can be helpful for hospital administration and health department in realizing the factors which can ease the problems of patients admitted in hospitals. The administration can figure out the reasons which impact the reputation of hospitals and staff working in the hospital as a whole. This study can help in upgrading of health facilities being provided in a certain hospital. This can help society at large to know the factors which can contribute in determining the importance to be given while choosing a hospital for getting treatment of diseases on the basis of qualified staff and ambiance. Because of limited access, this research study has been applied upon three hospitals which are the largest hospital in Punjab. This research study is conducted only three hospitals of Lahore and further studies can be conducted upon other hospitals in Lahore and also on outdoor patients.

As in this research stratified random sampling technique has been used for collecting the data therefore due to its exploratory nature and lack of representation, the conclusions from this study can neither be projected nor be generalized outside the strata unit used.

We recommend the future study regarding the impact of Nurses Performance and care they undertake in a hospital which makes a patient loyal and satisfy for choosing a hospital. Further investigation can be done. Future research can also be done by comparing teaching and non-teaching hospitals in Lahore. This study is conducted on patients admitted in three hospital, Lahore whereas in future this can be applied on other health facilities and especially upon District and Tehsil Level Hospitals of Lahore and overall the Pakistan in future.

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