ORIGINAL ARTICLE

# SERVICE QUALITY DIMENSIONS AND PATIENT SATISFACTION: A TWO-SIDED EMPIRICAL APPROACH

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**Background:** The present study attempts to investigate the impact of service quality dimensions (perceptions of patients as well as service providers) on patient satisfaction in public sector hospitals of Khyber Pakhtunkhwa province. The need to conduct research in this area is due to the growing importance of service quality in the healthcare sector. Thus, examining the two-sided role of service quality dimensions on patient satisfaction in the Province of KP is the main rationale behind the present study. **Methods:** The data was conveniently collected from a sample of 600 patients and 200 service providers from six districts headquarter hospitals. The hypothesized relationships were tested via multiple regression analysis with the application of SPSS Version 23. **Results:** Interestingly, divergent results were found from both perspectives. Six dimensions of service quality were found critical by the patients for their satisfaction whereas, only one dimension was found to be critical for patient satisfaction from service providers' perspective signifying that service providers are not meeting the expectations of the patients. **Conclusions:** The present study suggests the formulation of a sound patient-centred strategy in which patients are placed as value co-creators to increase their satisfaction with the services offered in public hospitals at KP Province, Pakistan. The study also discussed limitations, implications and future research directions.

**Keywords:** Patient satisfaction; Service quality; Health sector; Khyber Pakhtunkhwa

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## INTRODUCTION

Pakistan is ranked at 6th position population wise with current growth rate of 2.4% per year. Its population is recorded at 207.74 million as per 6th Population and Housing Census 2017. Pakistan was ranked 75th out of 156 countries in the UN Sustainable Development Solutions Network's (SDSN) 2018 World Happiness Report.[1] which was based on economic and social indicators such as corruption level, liberality, tolerance, life expectancy in healthy environment, social support and GDP per capita.

The happiness of the people of a country is dependent upon health care. Improved human health is highly linked to human happiness and well-being. A healthy population is more efficient and productive therefore it makes a critical contribution to economic and social progress. The state of health of the population in a given area is determined by the multifaceted parameters, which mainly comprise of nutrition, availability of clean drinking water and improved sanitation facilities, environment, sports activities, education, mass awareness, health facilities, and resources to improve the quality of life. Pakistan being a developing country is facing problems in its healthcare system. It is ranked 154th among 195 countries in terms of accessibility and quality of healthcare in a study carried out by the leading medical journal, The Lancet Public health.[2]

The public health sector in Pakistan is comprised of a diverse system of a vast public infrastructure of primary and secondary level healthcare facilities in rural and sub-urban areas, along with tertiary care hospitals in large metropolitan cities. However, this health system is known to have floundered in performance over the last six decades due to many reasons. Thus, the vacuum is being filled by the private medical sector for the population. Private practicing doctors, traditional and complementary healers, pharmacists, drug merchants, female medical technicians along with traditional birth attendants, unqualified practitioners (Quakes) encompass the huge market of private healthcare service delivery. It is estimated that 70% share of the total spending on healthcare is going to private healthcare sector in Pakistan.[3] There are serious gaps in health services delivery and below the mark, governance is highlighted as per health statistics of Pakistan.[4]

In Khyber Pakhtunkhwa, more than three-fifth (61%) of the health services are being accessed from the private sector.[5] The health facility assessment conducted in 2012 indicated that major issues faced by the health facilities were mainly due to lack of staff such as lady doctors and specialists (including gynaecologists, anaesthetist, and paediatrician) at DHQ and THQ

hospitals. Major gaps were also divulged in the availability of required human resources, medicines, equipment and supplies which contributed to the underutilization of the public sector health facilities (Health facility assessment, Khyber Pakhtunkhwa, 2012). It was found that patients visiting public sector hospitals in Khyber Pakhtunkhwa face a variety of problems and they are more often agonized rather than treated.[6] Khyber Pakhtunkhwa was the first province in Pakistan to develop a health sector strategy 2010–17, entailing a responsive system for bringing improvement the health status of the general public. It referred to poverty, inequality, and insufficient access to healthcare services as key challenges to be overcome. But still, more than 80% households who visited public sector hospitals for treatment in Khyber Pakhtunkhwa were not satisfied with the hospital services.[7]

Govt. of KPK has undertaken a number of initiatives as part of its health sector strategy. As a measure to improve the quality of care and standardization of health services Minimum Health Services Delivery Package (MHSDP) for primary and secondary health care has been developed in 2016 and is still in the implementation stage. According to MHSDP public sector hospitals and health facilities will be categorized according to the number of beds, catchment area population and the needs of the local population. The government will focus on the provision of minimum human resources, equipment, and medical supplies to the government hospitals according to their categories defined in MHSDP. It means that the policies of the government of Khyber Pakhtunkhwa give importance to only tangible aspects of service quality.

As economic and socio-political needs of the public are increasingly changing in whole world therefore development of strong healthcare system can rightly be attributed with innovation and demographic inclinations. This development creates the need of appropriate identification of the quality indicators in health systems, gap analyses and suitable policies in local settings by policymakers to improve the public health service delivery. Batbaatar *et al*[8] emphasized that health services quality dimensions are the most significant factors influencing patient satisfaction. According to Pouragha and Zarei[9], services quality indicators are most influential determinants of outpatient satisfaction. A noteworthy association between satisfaction of patients and factors of service quality was also indicated in a study by Kumari *et al.*[10] Furthermore significant relationship was found between service quality and patient satisfaction by Chang *et al*[11] while studying interactive medical services. Alghamdi[12] found similar impact of service quality dimensions on patient satisfaction.

Batbaatar *et al*[13] concluded that satisfaction theories are taken into literature of healthcare from primarily marketing field therefore learning patients' evaluation of healthcare is existent requirement instead of struggling in relating it to consumerist theories. 'SERVQUAL' is often criticized for its limitations in enumerating and articulating the responses of patients in different cultures and backgrounds. PAKSERV model was primarily used to indicate service quality dimensions at public sector hospital of Pakistan by Kashif *et al*[15] for the first time. They concluded that PAKSERV factors are equally important for public health care hospitals as well as private healthcare organizations. They further found that PAKSERV model appeared somewhat more useful than traditional SERVQUAL and other approaches in Pakistani cultural context.

Batbaatar *et al*, emphasized that elements of health services quality have the most significant association with patient satisfaction. However, the strategies to improve the public healthcare system in Pakistan have failed to deliver desired results and health services quality at public hospitals in Pakistan is poor.[16]

The current study, therefore, examines the role of service quality dimensions from patients as well as service providers' perception in public hospitals of Khyber Pakhtunkhwa Province in order to know whether there are differences between these opinions and points of view and whether they are deemed significant enough by both.

The theoretical basis for this research work is inspired from Expectations Theory and the Healthcare Quality Theory. Literature from various researches suggests that expectation is fundamental element and of vital importance for patient satisfaction[17] and it is much simple to describe patient satisfaction by accomplishing patients' expectations through provision of health services.[18] Donabedian[19] argued in favour of healthcare quality theory that satisfaction of the patient is a consequence of interpersonal and relational care, and it is a constructive judgment on all characteristics and facets of healthcare quality, chiefly about interpersonal care which involves the ability of the health care service provider to display optimum quality of interpersonal soft skills during the interaction period with the patients.[20] The service providers see patients from various backgrounds, therefore, their interpersonal skills carry the most important role in bringing satisfaction to the patients. Active listening abilities, communication skills and important attitudes including empathy, self- confidence and ability to maintain positive outlook play a major role in enhancing patients' confidence on the health services they receive at the public sector hospitals.

There have been several attempts to articulate this concept of patient satisfaction from consumerist, marketing and social fields since the 1960's. Hulka *et al*[21] formulated it as the patient's approaches towards,

physicians and medical care. Attitude theory was identified as basis of patient satisfaction by Linder-Pelz[22] i.e., "patient satisfaction is positive evaluations of distinct dimensions of the healthcare". Ware *et al*[23] presented definition of patient satisfaction as a difference in expectations, preferences and the actuality of care. Swan *et al*[24] explained patient satisfaction as "…an emotional response to the experience of hospitalization, but it is a cognitive process of comparing results to standards". The above definitions present three common characteristics of the concept. Firstly, satisfaction is an effective or responsive appraisal of the health service delivery based on intellectual progressions wrought by expectations.[17] Secondly, satisfaction is a comparison of expectations of patients and real time health service experiences and thirdly, it is a general assessment of overall features of a health service.[21]

Eventually, every one desires to get well soon and expect the provision of satisfactory services from the healthcare institutions. One's satisfaction level is based on elements such as the cost of services, behaviour of medical and other employees, and attitude, seclusion, provision of sufficient information, medicine availability and most vital is clean and healthy environment.[25] Personal experiences of the patients have a strong impact on their perceptions of quality. Patients' perceptive and behavioural reactions of either satisfaction or dissatisfaction towards the health services quality are developed after passing through the treatment process and their interaction with medical staff.[26] The waiting time spent by the patients before medical treatment can be painful and disturbing for the patients as they have to give up more productive activities for visiting a hospital.

Research literature indicated various reasons of patients remaining dissatisfied with health services at outpatient care.[27] According to them prolonged consultation periods, lengthy waiting times for appointments, lack of communication, availability of services, and failure in participation and contribution in decision making were the most important reasons. The patients and their attendants hope to get well quickly at the hospitals and this is also their ultimate expectation from health services.

American Society for quality control defined quality as overall characteristics of a product or service produced or delivered as per specifications which satisfy the needs of customers at the time of procurement or while in use. Researchers have debated regarding defining quality and the questions regarding its quantification in terms of services due to the constant development of the concept of quality. Although, literature proposes many credible and dependable definitions of quality, it remains a difficult and vogue concept.[25] The subject of service quality is frequently been explained in terms of apparent worth of a product or service. While in terms of services, most of the times it is articulated in comparative relations, i.e., matched with predetermined postulation of a degree of service.[28] This thought has been extensively developed and evolved in recent times. The efficient handling of problems with dependable services is also part of service quality. Therefore, performance appraisal of the employees is a significant undertaking carried out by the organizations for bringing improvement in quality of services.

Health care providers are currently more intrigued to recognize the causes and factors influencing quality of services because of stiff competition and extensive literature about requirements from the patients. Satisfaction of the patients can be achieved through various blends of responsiveness to the patient's perspectives and requirements including doctor to patient interactions and constant enhancement in healthcare services. Further, scholars have been promoting development of service quality scales sensitive to cultures as most of the research studies on this topic focused on individual countries. A three–model comparison between quality, satisfaction and loyalty was empirically tested by Lei and Jolibert[29] (2012) in China. They also supported using a culturally sensitive scale for improved understanding of the current state of service quality and patient satisfaction in healthcare settings.

Given the criticism on the SERVQUAL model and the importance attached to measuring service quality through culturally sensitive scales in the literature, PAKSERV model was presented by Raajpoot.[14] in the Pakistan context for measuring service quality. His model of the service quality was presented through six constructs whereas SERVQUAL consisted of five dimensions. He took three dimensions from SERVQUAL namely tangibility, reliability, and assurance while supplanting the measurements of 'responsiveness' and 'empathy' with the following factors:

**1.** Sincerity: the eagerness of the staff in provision of services as professed by the patient so that holding much importance to patients' welfare and interest can be established or demonstrated.

**2.** Formality: It is related with patients' evaluation of service delivery in a professional manner according to local cultures, customs and social distances.

**3.** Personalization: it refers to the patient's sensitivities about provision of attention at individual and personal level by the service providers.

The development of PAKSERV scale was based on following assumptions.

Service quality and its elements are being construed differently by societies and individuals from various cultural backgrounds. The desires and

expectations of service consumers' changes in different social and cultural environments therefore service delivery time cannot be standardized uniformly and importance is given just to a subset of the service quality measurements by the consumers rather than each factor utilized in the model.[14] It has turned out to be basic for improvement in performance of organizations by gauging quality of their services as this exercise assumes the most essential role in contributing towards progress of organizations.[30] Matis GK[31] found in their research that patients rarely possess the necessary knowledge to judge the professional efficiency of doctors and Nurses.

It is evident from above discussion that the positive relationship of service quality dimensions and patient satisfaction is being explored in existing work and the current literature promotes further probes in future of the factors most influential on patient satisfaction. It is essential to point that the most of the research work have selected patient's point of view as a source to measure quality at public sector hospitals. There is no existing study available measuring the relationship between service quality dimensions and patient satisfaction from both patients and service providers point of view, which is the core objective of this study see Figure-1.

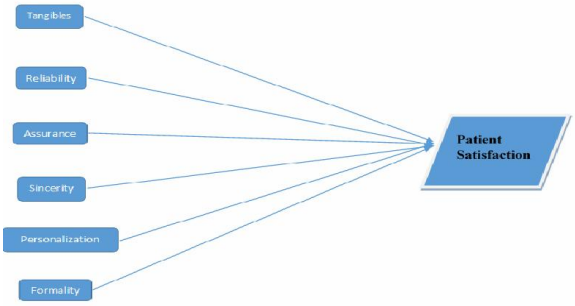


**Figure-1: Dimensions of service quality and patient satisfaction**

## MATERIAL AND METHODS

The population consisted of District Headquarter hospitals of district Nowshehra, Hangu, Karak, Abbottabad, Mardan, and Battagram. The sample was collected from these six districts headquarter hospitals in a period of forty-five days. Only admitted patients in different wards of hospitals were surveyed. Responses were also taken from Doctors and nurses working in these hospitals.

The present study has utilized a quantitative research approach for measuring the association between the variables as per hypothesis. The unit elements of analysis were patients and service providers (Doctors and Nurses) of public healthcare hospitals. The sample size for patients was taken at 650; however, 600 valid responses from patients were received, 200 valid responses were received from service providers.

The questionnaire for this research study comprised of three sections including demographics, Patient Satisfaction, and Service Quality Dimensions. There was a total of 42 items and a five-point Likert scale is used (1–Strongly Agree and 5–Strongly Disagree) to measure the outcome and predictor variables.

PAKSERV scale of Rajpoot[14] is adapted for determining factors of service quality with some alterations in order to make it easily understandable for patients and service providers. These dimensions included tangibles, reliability, assurance, sincerity, personalization, and formality. Total of 24 items was utilized to calculate service quality.

Questions related to patient satisfaction were adapted from PSQ-18[32] (The Patient Satisfaction Questionnaire) that is comprised of 18 items utilized to empirically estimate patient satisfaction.

## RESULTS

The data (Table-1) explain that there were 59.5% males and 40.5% female patients. The minutest age group was 18–30, maximum age group was 50 and above with the most prevalent age group being 31–40 age bracket (34.5%). Among the respondents 69.2% were matriculated, 13.5% were intermediate, 14% were bachelors and 3.3% were Masters. The occupations of respondents show that 6.3% respondents were from Government Services, 29.7% of participants were doing labour work, 15.8% of respondents showed Business as their occupation and 48.2% of respondents were marked under the heading 'others', which also included housewives and the jobless.

The descriptive data presented in table 2 indicate that there were 44.5% males and 55.5% female service providers who responded to the questionnaire. The lowest age group was 18–30, highest age group was 50 and above, and 53.5% of the doctors and nurses lie in the 31–40 age bracket. Among the respondents 17.5% had an intermediate qualification, 78.5% had done bachelors, 2.5% were Masters and 1.5% of the respondents were above Masters. The pay grade (BPS) of respondents shows that 43.5% respondents were from BPS 16, 44.5% of participants were from BPS 17, 11.5% of respondent doctors were working in BPS 18 and one doctor was on working in BPS 20.

Hadi *et al*[33] recommended the assessment of pattern and structured matrixes in order to test convergent and discriminant validity.

Hadi *et al*[33], explained that Exploratory Factor Analysis (EFA) is carried out to identify various movements of the target variables in consideration of different environments. Therefore, this study utilizes exploratory factor analysis to ascertain the factor structure of the data collected from the sample for determining constructs found are in align with PAKSERV scale. The assessment of data via KMO and Bartlett's test of Sphericity is conducted to check if observed constructs are being able to be grouped in certain dimensions of variable, i.e., factorability of statements (Table-3). Kaiser-Mayer-Olkin (KMO) values of 0.876 for patients and value of KMO for service providers at 0.772 indicates high variance, thus the data is fit for factor analysis.

The pattern matrix (Table-4) below shows that all of the values are greater than 0.5 that explains convergence of all items under their respective factors ensuring convergent validity. Nunnally and Bernstein[34] concluded that alpha coefficient value of larger than (>0.60) is the acceptable range. Therefore, the analysis for this table signify that items used in the constructs are consistent and reliable.

The histogram highlights normality in the model by bell shape curve and PP-plot explained linearity by showing almost straight line from bottom left to top right. We can accept about absence of linear auto-correlation in our multiple regression data Durbin–Watson d =1.566 for patients and d= 1.638 for service providers with a range of Durbin–Watson 1.5 <d <2.5.[35] Further, multicollinearity problem among the independent variables was checked through figures of Variance Inflation Factor (VIF). All the values of VIF were found to be less than 4.[36] indicating no multi-collinearity among the variables. (Table-5)

From these tests, it is evident that the dimensions of service quality have a large role in explaining patient satisfaction as per the response of patients and can be confirmed in existing situation. The model summary in regression analysis informs that the coefficient determination R square is 0.613, which explains that 61.3% of the deviation in the target variable (Patient satisfaction) can be described by all the predictor variables in the study. (Table-6)

From this test it is evident that the tangibles factor of service quality is linked with patient satisfaction with a beta of 41 % and t value of 8.484 with a *p-v*alue of 0.00 as per response of Service Providers, however, rest of the factors could not be confirmed in this setting. The multiple regression model summary shows that the coefficient R square equals 0.645 and explains 64.5% of the deviation in the target variable (Patient satisfaction) can be explained by all the predictor variables in this setting see Table 7 for detail.

**Table-1: Descriptive statistics of Patients**

| Demographics | Frequency | Percentage |
|---|---|---|
| Male | 357 | 59.5 |
| Female | 243 | 40.5 |
| Total: | 600 | 100 |
| Age: 18-30 | 176 | 29.3 |
| 31-40 | 207 | 34.5 |
| 41-50 | 105 | 17.5 |
| 50 & Above | 112 | 18.7 |
| Total: | 600 | 100 |
| Education: Up to Matric | 415 | 69.2 |
| Intermediate | 81 | 13.5 |
| **Bachelors** | 84 | 14 |
| **Masters** | 20 | 3.3 |
| **Total:** | 600 | 100 |
| **Occupation: Govt: service** | 38 | 6.3 |
| **Labor work** | 178 | 29.7 |
| **Business** | 95 | 15.8 |
| **Others** | 289 | 48.2 |
| **Total:** | **600** | **100** |

**Table-2: Descriptive statistics of service providers**

| Demographics | Frequency | Percentage |
|---|---|---|
| Gender: Male | 89 | 44.5 |
| Female | 111 | 55.5 |
| Total: | 200 | 100 |
| Age: 18-30 | 57 | 28.5 |
| 31-40 | 107 | 53.5 |
| 41-50 | 35 | 17.5 |
| 50 & Above | 1 | 0.5 |
| Total: | 200 | 100 |
| Education: Intermediate | 35 | 17.5 |
| Bachelors | 157 | 78.5 |
| Masters | 5 | 2.5 |
| More than Masters | 3 | 1.5 |
| Total: | 200 | 100 |
| Basic Pay Scale (Grade): BPS 16 | 87 | 43.5 |
| BPS 17 | 89 | 44.5 |
| BPS 18 | 23 | 11.5 |
| Above BPS 18 | 1 | 0.5 |
| **Total:** | **200** | **100** |

**Table-3: KMO and Bartlett's Test of Sphericity**.

| KMO and Bartlett's Test | Patients | Service Providers |
|---|---|---|
| Kaiser-Meyer-Olkin Measure of Sampling Adequacy. | 0.876 | 0.772 |
| Bartlett's Test of Sphericity. Approx. Chi-Square | 1376.417 | 3335.512 |
| Df | 120 | 276 |
| Sig. | 0 | 0 |

Source: SPSS results

**Table-4: Pattern matrix (Patients)**

| Items | Component | | | | | | |
|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | A |
| **Tangibles:** | | | | | | | 0.768 |
| "Latest Equipment is used" | 0.725 | | | | | | |
| "Attractive facilities are offered by hospital" | 0.805 | | | | | | |
| "The employees wear neat and clean dress" | 0.562 | | | | | | |
| "The written material is easy to read and understand" | 0.811 | | | | | | |
| "The hospital building is appropriate and signifies quality" | 0.812 | | | | | | |
| **Reliability:** | | | | | | | 0.694 |
| "Promises are kept by the employees" | | 0.781 | | | | | |
| "Specifications provided to patients are followed" | | 0.766 | | | | | |
| "Employees are able to maintain error free records" | | 0.519 | | | | | |
| "Services are available to patients" | | 0.800 | | | | | |
| **Assurance:** | | | | | | | 0.779 |
| "Employees treat patients on equal basis" | | | 0.518 | | | | |
| "Employees ensure physical safety during service encounters" | | | 0.646 | | | | |
| "Employees are courteous" | | | 0.821 | | | | |
| "Employees are knowledgeable" | | | 0.768 | | | | |
| **Sincerity:** | | | | | | | 0.655 |
| "Employees keep patients' best interest at heart" | | | | 0.778 | | | |
| "Employees provide unsolicited advice" | | | | 0.708 | | | |
| "All the queries are dealt in appropriate manner" | | | | 0.749 | | | |
| "Employees are not over-friendly" | | | | 0.540 | | | |
| **Personalization:** | | | | | | | 0.763 |
| "Individual attention is paid to everyone" | | | | | 0.720 | | |
| "First name is used to deliver service" | | | | | 0.822 | | |
| "Immediate attention is paid" | | | | | 0.691 | | |
| "Employees provide customized solutions" | | | | | 0.720 | | |
| **Formality:** | | | | | | | 0.688 |
| "Family names are remembered and used" | | | | | | 0.750 | |
| "Staff do not use foul language" | | | | | | 0.704 | |
| "Total attention is paid to patients" | | | | | | 0.504 | |

Source: Author's creation from SPSS results.

**Table-5: Multiple regression assumptions**

| Assumptions | Threshold Point | References | Model Values Patients | Model Values Service Providers |
|---|---|---|---|---|
| Durbin Watson | 1.5–2.5 | (Hutcheson and Sofroniou 1999) | 1.566 | 1.638 |
| Variance Inflation Factor (VIF) | VIF < 4 | (Steenkamp and Van Trijp 1991) | **TNG:** 2.971<br>**REL:** 2.327<br>**ASSUR:** 2.388<br>**PERS:** 3.899<br>**FORM:** 1.236<br>**SINC:** 3.082 | **TNG:** 1.269<br>**REL:** 1.182<br>**ASSUR:** 1.523<br>**PERS:** 1.394<br>**FORM:** 1.341<br>**SINC:** 1.404 |
| Mahal Distance | Critical Value<br>(values above the critical value are outliers) | (Algur and Biradar 2017) | **Min:** 1.061<br>**Max:** 28.5<br>**Mean:** 5.99 | **Min:** 0.595<br>**Max:** 118.255<br>**Mean:** 5.97 |
| Cooks Distance | 4/n | | **Min:** 0.000 | **Min:** 0.000 |
| | | (Algur and Biradar 2017) | **Max:** 0.045<br>**Mean:** 0.002 | **Max:** 0.475<br>**Mean:** 0.009 |
| Normality | | | Histogram | Histogram |
| Linearity | | | PP-Plot | PP-Plot |
| Homoscedasity | | | **Scatter Plot** | **Scatter Plot** |

Source: Author's creation from SPSS results.

**Table-6: Regression analysis (Patients)**

| Hypothesis | Path | Beta | Std. Error | t Statistic | *p*-Value | Decision |
|---|---|---|---|---|---|---|
| **H1a** | TNG – PS | 0.174 | 0.044 | 3.954 | 0.000 | Accepted |
| **H2a** | REL – PS | 0.272 | 0.044 | 6.979 | 0.000 | Accepted |
| **H3a** | ASSUR – PS | 0.133 | 0.045 | 3.359 | 0.001 | Accepted |
| **H4a** | SINC – PS | 0.146 | 0.050 | 2.545 | 0.011 | Accepted |
| **H5a** | PERS – PS | 0.128 | 0.055 | 3.202 | 0.001 | Accepted |
| **H6a** | FORM – PS | 0.091 | 0.037 | 3.254 | 0.001 | Accepted |
| R2 | 0.613 | | | | | |
| Adjusted $R^2$ | 0.609 | | | | | |
| F-Value | 156.319 | | | | | |
| Sig | 0.0000 | | | | | |

Source: Author's creation from SPSS results

**Table-7: Regression Analysis (Service Providers).**

| Hypothesis | Path | Beta | Std. Error | t Statistic | *p*-value | Decision |
|---|---|---|---|---|---|---|
| **H1b** | TNG – PS | 0.410 | 0.046 | 8.484 | 0.000 | Accepted |
| **H2b** | REL – PS | 0.082 | 0.039 | 1.769 | 0.078 | Rejected |
| **H3b** | ASSUR – PS | -0.077 | 0.063 | -1.462 | 0.145 | Rejected |
| **H4b** | SINC – PS | -0.608 | 0.040 | -11.968 | 0.000 | Rejected |
| **H5b** | PERS – PS | -0.102 | 0.063 | -2.016 | 0.045 | Rejected |
| **H6b** | FORM – PS | 0.116 | 0.056 | 2.329 | 0.021 | Rejected |
| R2 | 0.645 | | | | | |
| Adjusted $R^2$ | 0.634 | | | | | |
| F-Value | 58.5 | | | | | |
| Sig | 0.0000 | | | | | |

Source: Author's creation from SPSS results.

## DISUSSION

The findings of patient satisfaction reveal that health service quality indicators have strong and positive influences on patient satisfaction. This study was conducted to examine the two-sided role of service quality dimensions on patient satisfaction; therefore, the relationship of six dimensions of service quality with patient satisfaction was measured from patients as well as service providers.

According to the present study, service quality dimensions have a significant positive relationship with patient satisfaction from the patient perspective. Tangibles, reliability, assurance, sincerity, personalization, and formality put positive influence on patient satisfaction. Tangible is linked with patient satisfaction with a beta of 17% with a t value of 3.954 and *p* value of 0.00. Reliability is linked with patient satisfaction with a beta of 27 % and t value of 6.97 with a *p-v*alue of 0.00. Assurance is linked with patient satisfaction with a beta of 13% and t value of 3.359 with *p-v*alue is <0.05. Sincerity is linked with patient satisfaction with a beta of 14.6% and t value of 2.545 with a *p*-value <0.05. Personalization is linked with patient satisfaction with a beta of 12% and t value of 3.202 with a *p*-value <0.05. Formality is linked with patient satisfaction with a beta of 9% and t value of 3.254 with *p*-value at 0.00.

According to this study on service provider perspective, only one dimension out of six has a significant relationship with patient satisfaction. There is a significant positive relationship in tangibles and patient satisfaction with a beta of 41% and t value of 8.484 with a *p*-value <0.05 but there is no relationship in reliability, assurance, sincerity, personalization and formality dimensions and patient satisfaction. Therefore, as per service provider (Doctors and nurses) perspective, non-tangible factors of service quality do not hold critical value in patient satisfaction. Our study found stark differences in opinion of service providers and patients regarding the role of service quality dimensions influencing the satisfaction of patients. It clearly shows Service providers are not providing the services in public hospitals of Khyber Pakhtunkhwa as per expectations of patients.

The results from service provider perception are very much in accordance with attribution theory. The attribution theory construes apprehensions of individuals in understanding of circumstances and their causes. The attribution theory explains that people try to cognize others behaviour and attitudes by attributing feelings, beliefs, and objectives. Bernard Weigner.[37] (2010) explained about three stages of attribution: (1) Observance of behaviour, (2) behaviours and conducts are purposeful and deliberate, and (3) internal or external causes direct behaviour.

Therefore, the action of the Service provider, making assumptions or judging a process, is caused by internal and external factors. Under influence of internal or dispositional attribution, service providers may attribute patients' behaviour to the personal factors such as traits, abilities or feelings disregarding their actual perceptions. In an external attribution, they infer patients' behaviour due to situational factors. Therefore, Turris SA[38] found that there are diverse meanings of satisfaction for each patient and service provider according to convictions, morals, recognitions, sentiments, individual attributes, medical condition and past encounters with medical services and their own approach to consider the term 'care'. Hence, it is an individual, vibrant process and it is in relation to the human judgment theory. Therefore, our findings show a lack of interpersonal care being provided to the patients at public sector hospitals of Khyber Pakhtunkhwa.

## CONCLUSIONS

It is of ultimate importance, for all hospital authorities to recognize the processes involved which contribute to a satisfactory experience for the patients. This involves a number of factors such as service provider's competence, its interaction with the patients, the behaviour of the medical and other staff, facilities offered by the hospital and overall hygiene and environment of the hospital.

From this study, we can, therefore, conclude that service quality has a significant role in patient

satisfaction. Patients visiting public sector hospitals of Khyber Pakhtunkhwa give value to the equipment and building conditions of hospitals, reliability aspects, assurance, sincerity, and care, along with individual attention given and overall quality of services. The demographics of our study show that the majority of the patients visiting public sector hospitals belong to the low-income segment of the population with the less educational background. They don't have the required knowledge and expertise to judge the treatment quality and they cannot compare the curative services offered at these hospitals with already established standards.

Results from the responses of service providers also suggest that service quality has a significant relationship with patient satisfaction. However, in their opinion, only 'tangibles' dimension of service quality has a significant positive association with patient satisfaction and 'non-tangibles' dimensions do not impinge on the satisfaction of patients. This can be inferred in line with the attribution theory that service providers do not consider patients at public hospitals as their clients like at their private clinics rather as workload. Furthermore, in our study service provider has given more weight to the physical attractiveness of hospitals like buildings, infrastructure and latest equipment which they rightly attribute to the support they need in performing their duty.

This is also in line with previous research studies in which it is suggested that patient satisfaction is a focal subject of the healthcare services, and the initial step would be reinforcing the relational aptitudes through trainings and to expand correspondence and sympathetic abilities and skills of medical practitioners and to guarantee the coherence of the on job trainings and skills development of health professionals.[39]

There are some reasonable ramifications for health care providers and their managers in Pakistan emerging from this research work. As the government is focusing on the provision of human resources at public hospitals to address the health needs of its population, they must formulate policies for bringing efficiency in quality of health care in general and quality of interpersonal care in specific. The government has already established a monitoring regime in public hospitals. It is the need of the hour that the behaviour of medical staff with patients shall also be constantly monitored. The centrality of patient-orientation must be instilled in psyche of newcomers and in addition to current medical staff including specialists, physicians, technicians and attendants. In addition to it, management should convey commendation to the medical staff, on a periodic basis, to communicate management's regard and acknowledgement for those employees committed to the satisfaction of patients.
Provision of training programs and mentoring will reflect management support to the service providers. Hospital management is also advised on enhancing the physical conditions of a hospital as having clean rooms, toilets, and wards would essentially impact on patients' observations regarding quality. Hospitals are curing institutions and clean environment is necessary in provision of some sort of psychological alleviation to the patients as well as to the service providers.

It is imperative to note that by identifying and pulling in the right staff and giving them clean condition, hospitals will get the capacity to hold attractive staffs who is dedicated to their organization as well as to the patients, especially when public sector hospitals are already facing a deficiency of medical staff. The management must pay attention to both the technical and functional elements in the services which they are offering in order to ensure patients' satisfaction.

This examination like greater extent of studies was illustrative and cross-sectional, and the outcomes were obstructed from assessing causal connections among the predictor determinants and satisfaction. There is a requirement for more investigations on how social, behavioural, and financial contrasts influence patient satisfaction with standardized instruments which can be adaptable to particular segments according to their social, cultural and economic setting.

Health care research represents a different issue, which is related with investigation of associations and connections among patients, their companions and the services to be delivered to them. All in all, most scenes of collaboration between service providers and patients are not wilful but rather required due to medical conditions therefore are normally unfortunate. This tends to make the relationship between service provider and receiver so unique and dominated by feelings such as fear, appreciation, and worries about expenses on services which cannot be precisely evaluated heretofore. It is realized that opposing proof exists crosswise over patient satisfaction studies and the generalizability and consistency of results stay dubious.[40] Outcomes of this paper are also limited to the six secondary healthcare hospitals of Khyber Pakhtunkhwa and results could be different if the sample were also taken from tertiary care hospitals.

## AUTHORS' CONTRIBUTION

SKAS & NUH: Contributed equally.

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