

A Psychological Analytical Method for Improving Patient Well-Being in Pakistan's Governmental and Private Sectors

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Abstract

Purpose: The aid of advanced Grey Relational Analysis (GRA) models and the Hurwicz criterion for decisions in face of uncertainty, the investigation to determine that levels of satisfaction relate on a broad scale a patient with their care and five factors of Pakistan's public and private healthcare systems' level of care.

Design/methodology/approach: A modernized SERVQUAL measuring device collected data from Pakistani private and governmental healthcare institutions. Absolute GRA, the second synthetic GRA model, and Deng's GRA were all employed to solve an issue.

Findings: According to under-relational analysis models, reliability and responsiveness are valued in public and private healthcare, respectively, most potent predictors of patient satisfaction. According to Hurwicz's criteria, patients that receive personal care are more inclined to be satisfied with healthcare institutions.

Limitations/implications: The rules are also part of a SERVQUAL model incorporated into this study; for instance, the report asserts that because Pakistani public sector healthcare facilities lack "cost," a crucial quality indicator, in light of the remarks that Pakistani patients made were concerned with cost, model was unable to assess the status about health care system accurately. The study suggests modifying the SERVQUAL model for underdeveloped and resource-constrained nations where people's perceptions of hospital quality are likely to be impacted by the cost of treatments.

Originality/value: The research pioneered GRA models, specifically the second artificial GRA model, to assess Lahore and Rawalpindi's public and private healthcare systems. It effectively demonstrates the use of grey approaches, which may reach sound conclusions even with tiny samples, as an alternative to the statistical method of data analysis.

Keywords: Healthcare quality, Grey Relational Analysis, Second Synthetic Grey Incidence Analysis, SERVQUAL, patient satisfaction

1. Introduction

The most significant industry in a nation is that health care industry since it affects other sectors and medical, social, political, moral, commercial, and financial spheres. Everything, including accomplishments, loses its significance. If one is not healthy enough to ultimately benefit from prosperity, wealth does not matter. Developed nations constantly improve their healthcare system and national economy by fostering health tourism (Javed et al., 2019). The private sector contributes significantly to health systems to address issues such as shifting illness loads, financial limits, and demographic changes. Through supply of health-related items and services, finance and investment, workforce training, and infrastructural support, a private for-profit sector has established itself through time as a catalyst for innovation and a provider of high-quality healthcare (Marshall et al., 2023). The healthcare system used to primarily focus on treating existing illnesses, but this is no longer the case, and attention is now shifting to services that promote and prevent health. Government-provided health services are essential to a country's overall health. The goal of the health care delivery system, which consists of a group of individuals, is to meet each person's particular health requirements by offering them access to health

services (Ghafoor et al., 2022). Work-life balance (WLB) has emerged as an essential topic of concern for a workforce that can last. Organizations that use human resources sustainably boost employee productivity and foster the advantages of creativity, innovation, and employee well-being. To develop and nurture a sustainable workforce, an organizational climate that supports WLB and well-being is essential (Fazal et al., 2022). With 6.8% of population in Pakistan over age 60 and that number projected to increase to 12.3% by 2051, similar increases there may be an increase in age-related eye diseases. Even though Pakistan is making considerable strides in providing complete, integrated eye care services through facility upgrades, workforce training, and awareness campaigns, giving eye care remains a severe healthcare burden Malik et al., (2022). Nowadays, there is a lot of need for professionals in the healthcare sector because it is one of global businesses with the quickest growth. Pakistan has a low-income level and is a developing nation. In Pakistan, as in most developing countries, the private healthcare sector offers superior services to the situation system. However, there are still issues that must be resolved. To raise customer satisfaction and thus boost profitability, healthcare facilities must improve internal services (Abdullah et al., 2021)

2. Literature Review

The unique Second Synthetic Degree GIA model, Deng's Grey Incidence Analysis (GIA) model, the Absolute Degree GIA model, and two techniques for producing in the face of uncertainty are used to examine the association between Pakistan's five healthcare project's service quality structures and outpatient satisfaction (Javed and Liu, 2018) (Saleem et al., 2018) provided an overview of the Pakistani population's Health-Related Quality of Life (HRQoL) profile for those with high blood pressure. (Raza et al., 2020) addressed crucial clinical and policy solutions required to assist Health Care Professionals (HCPs) as the pandemic spreads. (Qazi et al., 2022) provided a thorough literature overview of situation in developing nations and links related issues that impact Pakistan's health-seeking behavior and use of healthcare services. (Khan et al., 2021) investigated the effects of COVID-19 on psychological health and related variables in general Pakistani population. The paper (Anees et al., 2018) was executed to ascertain that socioeconomic variables affect hemodialysis patients' Quality of Life (QOL). (Jafree 2017) determined the frequency and trends of Workplace Violence (WPV) against female nurses at two hospitals in Pakistan. The healthcare system is crucial and has to be improved to provide better HIV/AIDS care in Pakistan (Abdullah and Shaikh, 2017). A cross-sectional study was conducted at all intensive care units (ICUs) recognized for postgraduate training to determine administration, infrastructure, equipment, personnel, and training. To outline the scope and variety of critical care services in Pakistan (Hashmi et al., 2020). (Irshad et al., 2021) suggested that COVID-19 perceived risk mediates a connection between safety-specific transformational leadership and improved psychological well-being among healthcare professionals. (Suleman et al., 2021) assessed leadership empowerment as a predictor of staff psychological well-being in secondary educational institutions in Kohat Division. (Aslam et al., 2022) emphasized human rights requirements for institutions and practitioners in effect of life satisfaction on relationship between nurse burnout and depression would help the health sector increase life satisfaction among nurses. (Mushtaq et al., 2020) created an evidence-based strategy necessary to have a thorough grasp of social insurance and happiness policies applied to accord all factors sufficient credibility. (Ul et al., 2020) proposed relationships among work-life balance, intrinsic motivation, subjective well-being, and job satisfaction among Pakistani healthcare workers.

3. Methodology

3.1 Hypotheses

The following research hypotheses were put out in light of the study's goals and framework:

H1: Empathy and patient satisfaction are closely related.

H2: Patients have a strong correlation between tangibility and contentment.

H3: Patient pleasure is strongly correlated with assurance.

H4: Patients strongly link responsiveness to satisfaction.

H5: Reliability and patient satisfaction are closely related.

H6: Healthcare facilities in the public and private sectors are seen differently.

3.2 Sample and procedure

The outpatient and emergency departments of several private hospitals in Lahore and Rawalpindi inpatient populations continue the respondents. They chose two hospitals from each city, both public and private. The medical facilities were chosen based on how easily legal data collecting was possible on their property. Most respondents (57.5%) were men, with the remaining being women.

3.3 Instrument

The SERVQUAL scale has been demonstrated to be highly useful in Pakistan's healthcare industry and is frequently used by Pakistani academics. A 30-item questionnaire based on the modified SERVQUAL model⁹ was used to assess how patients felt about the standard of medical care provided in hospitals. There was a measurement of nurse satisfaction.

3.4 Reliability and validity

The survey's official launch, the instrument was tested at a private teaching hospital in Lahore, Pakistan, on 12 medical students. Traditional surveying was started in the chosen places when the dependability was determined to be strong. It was determined that each of questionnaire's five components (SERVQUAL dimensions) had a reliability of more than 0.70 (Cronbach alpha), and as a result, an instrument was given permission to be utilized. The survey consisted of given to 550 patients inside the hospitals and was written in Urdu, native language of Pakistan. On several occasions during 2.5 months, hospitals were visited. Only 467 (N_{Total}) questionnaires (N_{Private} = 249; N_{Public} = 218) of the total surveys were completed and used for data analysis. While "Deng's GRG" and "absolute GRG" were computed with assistance of Microsoft Excel, the SS GRG was determined with the aid of Chinese university Nanjing University of Aeronautics and Astronautics created a programme for modeling grey systems.

4. Result and discussion

Tables 1 and 2 show the results of data analysis using models developed by GRA for use in private and public healthcare industries. Patients in private sector hospitals regard responsiveness as having the most significant impact on (and association with) based on models of Deng's GRA and the absolute GRA, their satisfaction with the hospital's services.

Table 1: Grey relational assessment for the private healthcare industry

| Private sector | Absolute GRG | Rank | SS GRG | Rank | GRG | Rank |
|----------------|--------------|------|---------|------|--------|------|
| Assurance | 0.5448 | 3 | 0.654 | 3 | 0.7654 | 2 |
| Empathy | 0.5372 | 4 | 0.6626 | 4 | 0.7878 | 3 |
| Reliability | 0.7453 | 4 | 0.65004 | 6 | 0.5548 | 4 |
| Tangibility | 0.7971 | 3 | 0.7001 | 3 | 0.6031 | 5 |
| Responsiveness | 0.8548 | 2 | 0.84516 | 2 | 0.8355 | 2 |

Table 2: Evaluation of grey relations for public health care

| Public sector | Rank | SS GRG | Rank | GRG | Absolute GRG | Rank |
|----------------|------|---------|------|--------|--------------|------|
| Assurance | 3 | 0.71254 | 3 | 0.7688 | 0.6561 | 2 |
| Empathy | 1 | 0.75124 | 2 | 0.8282 | 0.6745 | 1 |
| Reliability | 2 | 0.8786 | 2 | 0.8758 | 0.8816 | 2 |
| Responsiveness | 4 | 0.5828 | 4 | 0.5912 | 0.5744 | 4 |
| Tangibility | 2 | 0.71316 | 3 | 0.8297 | 0.5968 | 3 |

According to the SSGRA model, Table 3's findings suggest that a healthcare facility's responsiveness, followed by tangibleness, empathy, certainty, and dependability, is the most significant element affecting patients' happiness in private hospitals. According to absolute GRA model and Deng's GRA model, patients that seek treatment at public sector hospitals regard dependability as having the most significant impact on (and link to) their satisfaction with the hospital's services. As indicated in Table 3, the SSGRA model suggests that a healthcare service's dependability is the most significant factor influencing patients' satisfaction with public hospitals. This is followed by empathy, tangibility, assurance, and responsiveness.

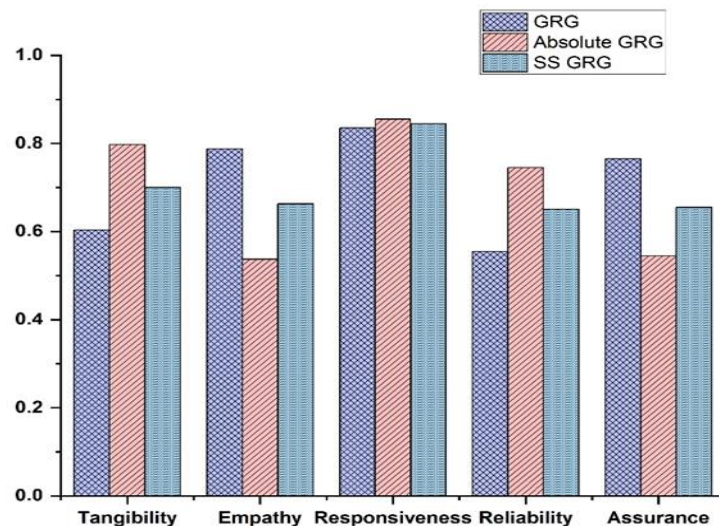


Figure 1: Grey relational assessment in healthcare industry's private sector

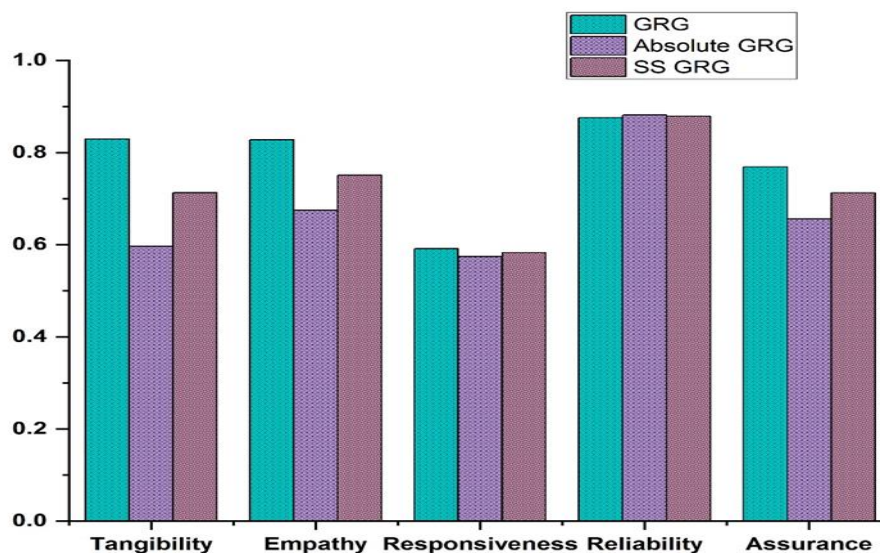


Figure 2: Evaluation of grey relations for public healthcare

The Hurwicz criteria were used to test the sixth hypothesis. As illustrated in Table 4, one must develop a decision scheme before using it. In this case, $m = 2$, $n = 5$, and the outcome $=v(a_i, s_j)$, where $i = 1, 2$ and $j = 1, 2, 3, 4, 5$. Let s_1 through s_5 represent tangibility, empathy, dependability, responsiveness, and assurance, and let a_1 and a_2 indicate the patient's satisfaction with the public and private institutions, respectively. The grey incidence-based matrix's SS degrees in Table 5 display "second synthetic grey relations" between selection criteria and the activities taken in decision-making.

4.1 The Hurwicz standards

The steps outlined in this technique have been used. Given that we must optimize the relationship's ambiguous relationship would be between patient satisfaction and quality criteria,

Table 3: Ranking of quality factors that affect the satisfaction of patients

| | | |
|------------------------------|--------------|--|
| Public health sector | GRG | Responsiveness > assurance > empathy > tangibility > reliability |
| | Absolute GRG | Reliability > empathy > assurance > tangibility > responsiveness |
| | SS GRG | Responsiveness > assurance > tangibility > empathy > Reliability |
| Private health sector | SS GRG | Reliability > assurance > empathy > tangibility > Responsiveness |
| | Absolute GRG | Responsiveness > tangibility > reliability > assurance > empathy |
| | GRG | Reliability > Tangibility > assurance > empathy > Responsiveness |

Table 4: Specifying the choice criteria

| | |
|--|--|
| Various actions (a_i); $i = 1, 2, \dots, m$ | The grey link provided better public health care (a_1), The grey connection a distinctive in a field of public health care (a_2) |
| Goal | Measuring a grey link (association) between customer happiness and healthcare service quality differences between public and private sectors |
| Criteria and state of nature (s_j); $j = 1, 2, \dots, n$ | Empathy (s_2), Tangibility (s_1), responsiveness (s_3), Assurance (s_5), and Dependability (s_4) are observable. |

Table 5: The matrix of standards and activities

| SS GRG | S ₄ | S ₁ | S ₂ | S ₅ | S ₃ |
|----------------|----------------|----------------|----------------|----------------|----------------|
| a ₂ | 0.65006 | 0.70021 | 0.75126 | 0.65501 | 0.84516 |
| a ₁ | 0.87871 | 0.71316 | 0.66251 | 0.71256 | 0.58291 |

be embodied by,

$$\max_j \{b \max_{t_i} u(b_j, t_i) + (1 - b) \min_{t_i} u(b_j, t_i)\} \quad (1)$$

4.1.1 Optimistic patients

The outcomes for hopeful patients were as follows when $\alpha = 0.3$ was considered.

$$b_1: (0.3) * 0.5829 + (0.7) * 0.8787 = 0.7900$$

$$b_2: (0.3) * 0.65005 + (0.7) * 0.84515 = 0.7866$$

4.1.2 For independent patients

The results for impartial patients who did not feel strongly about extreme optimism or extreme pessimism were as follows when $\alpha = 0.5$ was considered.

$$b_1: (0.5) * 0.5829 + (0.5) * 0.8787 = 0.7308$$

$$b_2: (0.5) * 0.65005 + (0.5) * 0.84515 = 0.7476$$

4.1.3 For depressed patients

The outcomes for pessimistic patients were as follows when considering $\alpha = 0.7$.

$$b_1: (0.7) * 0.5829 + (0.3) * 0.8787 = 0.6716$$

$$b_2: (0.7)*0.65005 + (0.3)*0.84515 = 0.7086$$

The degree of patient satisfaction and the quality dimension is getting closer and closer to being on par with one another for patients with a positive outlook. Therefore, patients in the private sector related their views based on evaluations of positive and objective patients, quality of health care services more significantly connects with their appreciation of the provided services. Suggests a certain “Pakistani patients” have a greater chance of finding satisfactory treatment at healthcare facilities run by the private sector.

5 Conclusion

Pakistan's health care system is dealing with various issues, such as limited budgetary funding for health care and an absence of appropriate mechanisms to ensure equitable distribution and transparent budgeting. Other problems include a need for more trust in government-run medical institutions and actual or perceived corruption in the healthcare industry. If the proper steps are not implemented, and the healthcare system is not improved, it might have disastrous implications for Pakistanis' health in the future. According to some projections, Pakistan will be the fifth or sixth most populated nation by 2050, with a population of over 300 million. The accurate evaluation of a nation's health care system can also be improved by using outdated models without question and adapting them to the requirements of the people. One hospital administrator, for instance, questioned the model's applicability for Pakistani patients that were cost-conscious (SERVQUAL) when the results were shared with some hospital executives. He argued that while he could be persuaded that private healthcare facilities were providing better services, most patients that went to public hospitals could not afford the services provided by private hospitals. As a result, he could not be persuaded that the public was private sector satisfaction is higher. Issues with costs are a recent development in Pakistan's healthcare system. According to the authors, American institutions adopted the five-dimensional SERVQUAL model, which lacks a "treatment cost" (the expense of seeking therapies), which has hampered the model's applicability, particularly for its performance in poor or developing nations with limited resources. Resource limitations can make it more difficult for effective healthcare services to remain in operation. As a result, studies utilizing the SERVQUAL model in the Pakistani healthcare system cannot document one of the significant successes of that system, namely, its capacity to provide services at incredibly cheap costs.

The current study suggests that future studies look at original SERVQUAL model and a modified SERVQUAL scale because no performance management tool is perfect for incorporating additional significant features. One such essential factor is Service costs and prices about an organization's cost efficiency. After successful validation, there may also be presented of scales for healthcare systems in both underdeveloped and developed countries. The study advises concentrating on the best increase in service quality, i.e., meeting (not surpassing) patients' expectations, for practitioners and healthcare administrators in developing nations. Each nation's healthcare system component must have its ideal combination of service dimensions. Patients who go to private and public hospitals have various demands placed on service providers. For instance, as the present study illustrates, responsiveness of medical staff a significant for patients in private hospitals. Still, dependability of the medical staff is necessary for the patients of public hospitals.

The commercial sector compromised its public sector and responsiveness above other characteristics compromised its dependability in different sizes, the situation would become more difficult for both. Each industry has its competitive advantages, and to supply services of the absolute best feasible quality, each sector must devise its approach. Because healthcare providers are directly responsible for their patient's well-being, providing high-quality services is paramount in the fight against illness and injury. Their part is significant in ensuring the current population's health and the generations who will come after them. Choosing the correct method will pay off for them in the long term while selecting the incorrect plan will worsen the future healthcare scenario. Even if developed nations are more prosperous, developing countries may provide specialized within the constraints of their constrained resources, offer health services, and have a greater capacity to deliver quality healthcare services by combining political will with collective determination. This is possible even while wealthy nations are better equipped. Cuba is an excellent example since the government has maintained and strengthened its achievements in health care despite challenging economic conditions.

The primary reason for Pakistan's healthcare system's precarious state is a lack of collective political will to improve situation. Every nation can choose an optimal combination of expenses that guarantees the distribution of a less humiliating percentage in budget accordance along with guidelines established by Pakistan and other lower-middle-income nations on the World Health Organization's (WHO) healthcare costs after jeopardizing a country's ability to maintain its national security and defense, as an alternative to devoting a significant portion a federal budget to defense and military spending.

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