Evaluation of Post-PCI Cardiac Patients' Satisfaction Level with Quality of Care

Sarwat Paiker Malik, Muhammad Nadir Khan, Fahad Khan Toru, Nighat Noor, Misbah Afroz, Maria Nazir

Department of Adult Cardiology, Armed Forces Institute of Cardiology/National Institute of Heart Diseases/National University of Medical Sciences (NUMS) Rawalpindi, Pakistan

ABSTRACT

Objective: To investigate the patients' overall satisfaction level with the quality of care provided in those who underwent Percutaneous Coronary Intervention (PCI) and survived an acute coronary syndrome.

Study Design: Analytical, Cross-sectional Study.

Place and Duration of Study: Armed Forces Institute of Cardiology & National Institute of Heart Diseases, Rawalpindi Pakistan; from Apr to Nov 2023.

Methodology: A total of 210 patients, aged over 18 years, were enrolled in the study using non-probability consecutive sampling. The study included individuals with a history of myocardial infarction, prior PCI, hospital stays exceeding 24 hours, and those who were discharged alive. Patients with psychological disorders were excluded from study. Patient satisfaction was measured using a modified version of the Patient Satisfaction Questionnaire (PSQ-III), while the quality of care was assessed through the SERVQUAL framework.

Results: Out of 210 patients, 176(83.8%) were males and 34(16.2%) were females and majority of the patients had >60 years of age. One hundred and sixty-four (78.1%) patients were highly satisfied. Median of overall satisfaction level and overall quality of care was 4.00(4.00-4.00) and 4.06(4.06-4.12) respectively. Among demographics, place of residence was in significant association with patient's satisfaction (p=0.03). Regarding the quality of care, reliability and assurance showed a significant positive correlation with patients' satisfaction (r=0. 138, p=0.046 and r=0. 163, p=0.018, respectively).

Conclusion: Overall the higher satisfaction level was noted in patients with significant positive relationship with empathy and assurance. The greater the quality of care patient receives, the more they are satisfied.

Keywords: Percutaneous Coronary Intervention, Patient Satisfaction Questionnaire-II, Quality of Care, Satisfaction Level, SERVQUAL.

INTRODUCTION

Ensuring patient satisfaction holds paramount significance in gauging the success of a healthcare system (HCS). Presently, HCS is witnessing an increased focus on patients' satisfaction, a pivotal metric for evaluating healthcare delivery and service quality. The success of Health Care Personnel (HCP) provision hinges upon the provision of Quality-based frameworks for measuring satisfaction for better understanding of patients' experience.[1] Evaluating satisfaction not only enhances understanding but also identifies avenues for quality enhancement.[2] A Crusade Study, conducted in the United States indicates that satisfied patients profoundly impact post-procedural treatment adherence and improved survival rates.[3] Hence Patient satisfaction is a crucial indicator of healthcare quality, reflecting the provider's ability to not only meet patient expectations but also linked to key outcomes such as improved adherence to treatment, reduced medical service utilization, fewer malpractice claims, and better prognosis.[4]

Coronary artery disease (CAD), a predominant health concern in the 21st century, surpasses all other leading causes of death globally. In Pakistan, it constitutes the primary cause of mortality, accounting for 16.49% of all deaths and placing the country at 30th rank in the world with a death rate of 193.56 per 100,000 people.[5]

Percutaneous Coronary Intervention (PCI) stands as a widely employed procedure alleviating chest pain and enhancing heart blood flow in patients with CAD. Hospitalization plays a significant role in the PCI process with patients' satisfaction significantly influencing overall prognosis.[6] Factors impacting satisfaction includes pain management, meticulous nursing, properly addressing the patients' concerns, counseling regarding post-PCI medications and the overall cleanliness and comfort of the hospital

Correspondence: Dr Sarwat Paiker Malik, Department of Adult Cardiology, AFIC/NIHD, Rawalpindi, Pakistan

environment. High patient satisfaction post-PCI correlates with enhanced survival rates and a better quality of life minimizing readmission rates for re-infarcts.[7]

Our study investigated patient satisfaction with the quality of care (QOC) among post-PCI acute coronary syndrome (ACS) survivors, addressing a critical gap in research within cardiac patient population of Pakistan. While a prior study[8] at the same institution utilized a self-developed questionnaire to assess patient satisfaction without comparing it to QOC, we employed the established modified PSQ-III tool. In contrast to another study conducted in Karachi,[9] that utilized the Short Form Health Survey, we adopted SERVQUAL, a recognized standard questionnaire for measuring quality of care. Additionally, our focus on post-PCI cardiac patients represents a significant advancement, as previous research has primarily examined general cardiac patients without considering ACS status. This study aimed to explore patient experiences and enhance service quality and care delivery while providing valuable data for future research and improving individualized patient support during ACS recovery. Moreover, earlier studies on post-PCI patients in Pakistan predominantly centered on satisfaction related to same-day discharge, overlooking the assessment of satisfaction concerning quality of care. This highlights the significance of our study as a first step toward additional in-depth investigations and the demand for a more thorough comprehension of patient satisfaction in this setting.

METHODOLOGY

This analytical cross-sectional study was conducted at the Armed Forces Institute of Cardiology (AFIC/NIHD) Rawalpindi, a tertiary care hospital, from May to October 2023. The study was conducted after approval from the ethical review Institutional Board with IERB (IERB letter #9/2/R&D/2023/255; Dated: 27th Apr, 2023).

The sample size of 127 patients was determined by WHO sample size calculator, taking 90.9% proportion of patients satisfied with hospital services,[10] confidence level of 95%, and margin of error of 5%. However, we gathered data from 210 patients and non-probability consecutive sampling was employed to enroll the participants.

Inclusion Criteria: Patients of either gender with age over 18 years and a history of myocardial infarction, who underwent PCI and were hospitalized for more than 24 hours, subsequently discharged alive were included in the study.

Exclusion Criteria: Cardiac patients with concomitant psychological disorders and pregnant females were excluded from study.

Data collection was occurred in the AFIC OPD using a semi-structured questionnaire comprising of two parts: demographics and patient satisfaction/ quality of care assessment. The data collection process involved trained doctors and staff nurses who verbally translating the Patient Satisfaction Questionnaire (PSQ-III)[11] into Urdu for the patients. Responses were collected by presenting the translated questions to the patients, and the answers were recorded using a 1-5 coding scale to ensure accessibility and accuracy. PSQ-III questionnaire evaluates following aspects of care: technical quality, interpersonal manner, communication, time spent with the doctor, and accessibility of care. The response categories for each item are: strongly agree, agree, neutral, disagree, and strongly disagree. In the modified PSQ-III, each dimension includes specific subscales assigned to a single module that are also evaluated based on a 1-5 coding, where 1 represents "strongly disagree" and 5 represents "strongly agree." Scoring rules vary depending on whether items reflect a favorable or unfavorable opinion about medical care. Since higher scores on all subscales indicate greater satisfaction with the respective aspect of care, items are scored accordingly. Quality of care was assessed using one of the most widely used tools for assessing service quality; SERVQUAL Scale, which was created by Parasuraman *et al.,* in 1988.[12] A WHO study examined seven dimensions of service quality.[13] These key dimensions include; Tangibility: factors such as the appearance of facilities and equipment; Reliability in delivering services accurately and consistently; Responsiveness in providing timely assistance and care; Assurance of professional expertise and competence from staff; Empathy in offering compassionate, individualized attention; Culture in addressing language and religious barriers; and Communication in the effectiveness of provider-patient interactions.

Each item is rated on a scale from 1 to 5, with 1 indicating "strongly disagree" and 5 indicating "strongly agree." This setup also ensured that higher scores consistently represented a higher level of service quality.

ADULT CARDIOLOGY

An average score for each of the categories was calculated as well as a composite satisfaction score for the entire survey. Composite scores were then calculated as the mean score based on the total number of questions each patient answered. Rigorous quality control measures included daily checks for data completeness by the research assistant team before entering data into the system.

An initial pilot study was conducted on fifteen patients to assess the reliability and validity of translated version of both the PSQ-III and SERVQUAL scales. Reliability analysis demonstrated excellent internal consistency, with Cronbach's alpha values of 0.94 for the PSQ-III and 0.89 for SERVQUAL, indicating strong reliability for both instruments. The mean scores for patient satisfaction and quality of care were 4.70±0.37 and 4.76±0.31, respectively. Furthermore, there was a strong, positive, and statistically significant correlation between patient satisfaction and quality of care (r=0.91, $p<0.001$), revealed that higher levels of patient satisfaction were closely associated with higher quality of care provided.

The data analysis was conducted using SPSS version 24:00 (Statistical Package for the Social Sciences IBM Corp), wherein all variables underwent evaluation for adherence to statistical assumptions. Chi-square test was applied to find difference in patients' satisfaction in terms of gender and province. Pearson's correlation and linear regression were utilized to find the strength and direction of correlation between the patient satisfaction and quality of care. $p \leq 0.05$ was taken as statistically significant.

RESULTS

The sample demographics indicate a significant representation of individuals aged 60 and above 161(76.7%), with a minority aged 18-39(5.7%). Maximum respondents were males 176(83.8%), 34(16.2%) were females. Predominantly the sample belonged to Punjab 165(78.6%). Educational levels vary, with 7(3.3%) lacking formal education.

Majority of the patients reported high median scores for satisfaction level. The median of overall satisfaction level and overall quality of care was 4.00(4.00-4.00) and 4.06(4.06-4.12) respectively that indicates that patients were highly satisfied with a good quality of care provided (Table-II).

Majority of the patients were highly satisfied 164(78.1%) with provided quality of care while few of them had low satisfaction 46(21.9%). Among demographics, place of residence was in significant association with patient's satisfaction (p=0.03). Regarding the quality of care items, majority of patients marked satisfied option in SERVQUAL. All individual items of SERVQUAL (quality of care) scale had no significant association with patient's satisfaction (p>0.05) (Table III).

Table-I: Demographic Characteristics and comorbids of Study Participants (n=210)

Variables		Frequency (%)
Gender	Male	176(83.8%)
	Female	34(16.2%)
Age (years)	18-39	12(5.7%)
	40-60	37(17.6%)
	>60	161(76.7%)
Marital Status	Single	14(6.7%)
	Married	190(90.5%)
	Widowed/divorced	6(2.9%)
Employment	Serving	26(12.4%)
	Retired person	142(67.6%)
	Civil Employ	17(8.1%)
	Housewife/unemployed	25(11.9%)
Education	Primary	25(11.9%)
	Secondary	166(79%)
	Tertiary	12(5.7%)
	None	7(3.3%)
Resident	Punjab	165(78.6%)
	KPK	33(15.7%)
	Baluchistan	2(1.0%)
	Gilgit	10(4.8%)
Monthly Income	≤50k	72(34.3%)
	50k-100k	100(47.6%)
	100k-200k	38 (18.0%)
Comorbids	Diabetes	122(58.1%)
	Hypertension	114(54.3%)
	Smoker	167(79.5%)
	IHD	95(45.2%)
	COPD	64(30.5%)
	Family history of Ischemic Heart Disease	132(62.9%)

KPK= Khyber Pakhtunkhwa, IHD= ischemic heart diseases. COPD= Chronic Obstructive Pulmonary Diseases

Table-IV showed the correlation between patients' satisfaction with five different domains of quality of care. Of these, only empathy and overall quality of care showed a significant and positive but weak relationship with patients' satisfaction (r=0.138, and r=0.163, p<0.05, respectively).

Quality of care was taken as independent variable while patients' satisfaction was considered as dependent variable. All the assumptions were analyzed. The patients' satisfaction was regressed on predicting quality of care to check the effect between them. Our model {F (1,208) = 3.879, p=0.05} explained that 18% variance (R^2=0.18) in outcome as quality of

care positively and significantly predicted patients' satisfaction (β =0.37, t=1.97, p=0.05) among cardiac patients (Table-V).

Table-II: Scores of Patient Satisfaction and Quality of Care Across Various Sub-Domains (n=210)

Variables	Median(IQR)
Patients' Satisfaction	4.00(4.00-4.00)
Technical Quality	4.00(4.00-4.00)
Accessibility	4.00(4.00-4.00)
Interpersonal relationship	4.00(4.00-4.00)
Our Communication with You	4.00(4.00-4.00)
Visit time with provider	4.00(4.00-4.00)
Quality Of Care	4.06(4.06-4.12)
Tangibility	4.33(4.33-4.33)
Reliability	4.00(4.00-4.00)
Responsiveness	4.00(4.00-4.00)
Assurance	4.00(4.00-4.00)
Empathy	4.00(4.00-4.25)

Table-III: Comparison of Demographics and Quality of Care with Patients' Satisfaction (n=210)

Variables		Patients' satisfaction Frequency (%)		p-value
		Low n=46	High n=164	
Gender	Male	40(87.0%)	136(82.9%)	
	Female	6(13.0%)	28(17.1%)	0.65
Resident	Punjab	41(89.1%)	124(75.6%)	
	KPK	4(8.7%)	29(17.7%)	
	Gilgit	1(2.2%)	9(5.5%)	0.03
	Baluchistan	-	2(1.2%)	
Quality of care				
Tangibility	Neat appearance of health workers — Unsatisfied	2(4.3%)	3(1.8%)	0.30
	Satisfied	44(95.7%)	161(98.2%)	
	Waiting facilities — Unsatisfied	2(4.3%)	10(6.1%)	1.00
	Satisfied	44(95.7%)	15(93.9%)	
	Hygienic condition — Unsatisfied	-	2(1.2%)	1.00
	Satisfied	46(100%)	162(98.8%)	
Reliability	Seen according to expectations — Unsatisfied	1(2.2%)	1(0.6%)	1.00
	Satisfied	45(97.8%)	163(99.4%)	
	Problem solved — Unsatisfied	1(2.2%)	1(0.6%)	0.39
	Satisfied	45(97.8%)	163(99.4%)	
Responsiveness	Prompt attention — Unsatisfied	1(2.2%)	2(1.2%)	0.52
	Satisfied	45(97.8%)	162(98.8%)	
	Helped according to the need — Unsatisfied	1(2.2%)	1(0.6%)	1.00
	Satisfied	45(97.8%)	163(99.4%)	
Assurance	Follow up care — Unsatisfied	-	5(3.0%)	0.58
	Satisfied	46(100%)	159(97.0%)	
	Concern — Unsatisfied	-	3(1.8%)	0.25
	Satisfied	46(100.0%)	161(98.2%)	

Table-IV: Correlation of Quality of Care with Patients' Satisfaction (n=210)

Variables	Coefficient of correlation(r)	p-value
Quality of Care	0.008	0.912
Tangibility	0.033	0.63
Reliability	0.138	0.046
Responsiveness	0.037	0.590
Assurance	0.163	0.018
Empathy	0.049	0.481

Table-V: Effect of Quality of Care on Patient Satisfaction (n=210)

Variables	R^2	B	F	p-value
Patient satisfaction	0.18	0.37	3.87	0.05

DISCUSSION

In the current study, most patients expressed significantly high satisfaction, as evident by the mean scores. Specifically, the mean ratings for overall satisfaction and quality of care were 4.00(4.00-4.00) and 4.06(4.06-4.12), respectively and 78.1% patients were highly satisfied. Reliability and assurance showed a significant and positive but weak relationship with patients' satisfaction.

Study findings are supported by past literature as evidenced by a study conducted by Farajat et al.,[14] in cardiac units in the Kingdom of Saudi Arabia. They reported notably high satisfaction level across all service quality dimensions (SQDs), with median scores ranging from 4.00 to 4.25 and mean scores from 4.17 to 4.40. Similarly, a study by Kanwal and colleagues[15] in Pakistan also found high levels of patient satisfaction with their doctors, supporting these findings. Patients expressed greater satisfaction when their doctors demonstrated friendly and courteous behavior.[10]

Our study indicated a significant association between residency and patient satisfaction levels (p=0.03, p>0.05). Patients from provinces outside Punjab reported greater dissatisfaction, likely due to communication barriers in diverse tertiary care environments.[16] Similarly, another Pakistani study[17] found that language barriers and insufficient communication led to patients feeling uninformed about their conditions and procedures. To address these issues, it is crucial to enhance healthcare professionals' proficiency in patients' native languages. Language differences can frustrate physicians, negatively impacting healthcare delivery and follow-up referrals. Furthermore, poor communication undermines rapport, effective counseling, and patient comfort, highlighting the need for empathy and strong communication skills to foster trust and improve healthcare outcomes.

Quality of care also showed a significant prediction for patients' satisfaction in current study. Our model {F (1208) = 3.879, p=0.05} explained that 18% variance (R^2=0.18) in outcome as quality of care positively and significantly predicted patients' satisfaction (β =0.13, t=1.97, p=0.05) among cardiac patients, which was in compliance with the study conducted by Dennis and colleagues who demonstrated significant link between patient satisfaction and quality of care (p=0.007).[18] In contrast to our study, recent studies in Pakistan[19,20] focused

primarily on the satisfaction levels of post-PCI patients regarding same-day discharge, overlooking overall quality of care. These studies compared clinical outcomes between patients discharged on the same day and those with longer hospital stays. Our study assessed patient satisfaction with the quality of care (QOC) among post-PCI acute coronary syndrome (ACS) survivors in Pakistan, addressing a crucial research gap.

Tangibility pertains to infrastructural facilities such as laboratories, equipment, hygienic conditions of restrooms, and the overall health-focused environment of the hospital. The study results indicated that while the majority of respondents were highly satisfied with the tangibility aspect, it showed a weak and statistically insignificant correlation with patient satisfaction (r=0.033, p=0.45). Similarly, Irfan et al.,[21] reported an insignificant relationship of tangibility and empathy with patient satisfaction (p=0.56 and p=0.30, respectively). In contrast, Rehman et al.,[22] found a significant correlation between tangibility and patient satisfaction (p<0.05).

In current study's participants, empathy emerged as the non-significant and weaker correlate of satisfaction (r=0.049, p=0.48), contradicts with a study conducted by Li et al.,[23] who reported significant result for empathy (p=0.003) in Chinese hospitals. Naturally, exhibiting empathy towards patients, actively listening to their concerns, and effectively addressing their issues are all factors that predictably contribute to heightened levels of patient satisfaction.

Reliability refers to consistently and accurately delivering promised services, including fulfilling commitments and timely service provision. This study found that most patients were highly satisfied with reliability, showing a significant positive correlation (r=0.138; p<0.05). Similarly, Mendoza et al.,[24] reported that reduced waiting and consultation times enhance client satisfaction. Furthermore, the cost of service had the greatest impact on overall patient satisfaction.

Irfan et al.,[21] highlighted that public hospitals often fail to make noticeable efforts to provide quality services or address the needs and expectations of their patients. Thus, a lack of positive responsiveness among public sector healthcare workers was observed. Additionally, Rehman et al.,[22] concluded that responsiveness has an insignificant relationship with patient satisfaction, aligning with the findings of current study. Long waiting times, especially before PCI admission, are a common source of patient

dissatisfaction as addressed in a study by Alrasheedi et al.,[25] and is in line to our study as well. This issue is exacerbated when cath labs are overwhelmed with ACS cases. In such situations, triaging based on symptoms becomes crucial, emphasizing the need for prompt intervention, particularly prioritizing ST-elevation myocardial infarction (STEMI) over non-ST-elevation myocardial infarction (NSTEMI) or unstable angina. Reducing door-to-balloon time to within 90 minutes is imperative for achieving optimal outcomes.[26]

Irfan et al.,[21] also supported the current study, while reporting the significant relationship of assurance with patient satisfaction (p=0.02). The main reason is that most of the public hospitals included in the study are affiliated with medical colleges, where highly qualified and renowned professors practice, and leading patients to expect treatment from the best doctors.

Enhancing patient satisfaction in ACS scenarios involves a comprehensive approach. By prioritizing timely interventions, establishing after-hours triage systems, addressing communication challenges, and personalizing treatment plans, healthcare providers can significantly improve the overall quality of care and patient satisfaction. Thus, Training healthcare professionals in enhancing the quality of care could further drive improvements in healthcare outcomes.

LIMITATIONS OF STUDY

Studies on patient satisfaction after percutaneous coronary intervention (PCI) were valuable but had limitations that should be considered when interpreting the findings. Response bias may have resulted from participants' desire to provide socially desirable answers, affecting the accuracy of satisfaction ratings. Memory retrieval bias posed challenges, as patients may not have reliably remembered or reported their experiences after PCI. Regional and demographic differences made generalization difficult, while linguistic, cultural, and social preferences further complicated objectivity.

CONCLUSION

Study revealed a significant correlation of reliability and assurance with patient satisfaction, indicated that higher perception leads to greater satisfaction. Additionally, patients from regions outside of Punjab reported lower satisfaction levels, potentially due to communication barriers. Addressing these barriers by training healthcare professionals in local languages and improving timely access to care may enhance patient satisfaction and improve their overall experience.

REFERENCES

1. Anderson PM, Krallman R, Montgomery D, Kline-Rogers E, Bumpus SM. The relationship between patient satisfaction with hospitalization and outcomes up to 6 months post-discharge in cardiac patients. J Patient Exp 2020; 7(6): 1685-1692. https://doi.org/10.1177/2374373520948389

2. Manzoor F, Wei L, Hussain A, Asif M, Shah SI. Patient satisfaction with health care services; an application of physician's behavior as a moderator. Int J Environ Res Public Health 2019; 16(18): 3318. https://doi.org/10.3390/ijerph16183318

3. Aguayo de Hoyos E, Brea-Salvago JF. The CRUSADE study, evaluation model of quality in percutaneous coronary intervention. Med Intensiva 2006; 30(6): 276-279. https://doi.org/10.1016/s0210-5691(06)74524-7

4. Xesfingi S, Vozikis A. Patient satisfaction with the healthcare system: Assessing the impact of socio-economic and healthcare provision factors. BMC Health Serv Res 2016; 16: 1-7. https://doi.org/10.1186/s12913-016-1327-4

5. Shah SY, Iqbal Z, Aziz S, Khan YA, Rahman SU, Ahmed F, et al. Factors Affecting Health-Promoting Behaviors in Patients Diagnosed with Myocardial Infarction. Journal of Health and Rehabilitation Research 2024; 4(1): 1096-1101. https://doi.org/10.61919/jhrr.v4i1.558

6. Khan SQ, Ludman PF. Percutaneous coronary intervention. Medicine 2022; 50(7): 437–444. https://www.binasss.sa.cr/jul22/51.pdf

7. Herdiman, Harsono H. The relationship between self-care and quality of life among Coronary Heart Disease patient after receiving Percutaneous Coronary Intervention: A systematic review. KnE Life Sci 2021; 155–171. http://dx.doi.org/10.18502/kls.v6i1.8600

8. Pervaiz F, Zaidi SK, Naqvi S, Siddiqa A, Khalil H, Shah AA. Pilot Survey Of Patient Satisfaction Towards Outpatient Services At A Tertiary Cardiac Care Hospital. Pak Armed Forces Medical J 2015; 65: 20-24. https://pafmj.org/PAFMJ/article/view/4312

9. Kumar R, Ammar A, Shah JA, Saghir T, Kumar A, Shaikh AH, et al. Quality of Life after Primary PCI in Pakistani Population – Does it Really Change?. Pak Heart J 2021; 54(03): 224-229. https://doi.org/10.47144/phj.v54i3.2164

10. Owusu AA, Boakye K, Boateng D, Osei-Mensah C, Agyei-Baffour P. Patient satisfaction with quality of care at out-patient departments in selected health facilities in Kumasi, Ghana. BMC Health Serv Res 2024; 24(1): 1027. http://dx.doi.org/10.1186/s12913-024-11399-w

11. Monica 1776 MSS, California 90401-3208. Patient Satisfaction Questionnaire from RAND Health Care [Internet]. https://www.rand.org/health-care/surveys_tools/psq.html./2023.

12. Hossain MM. Pervasiveness of SERVQUAL and its potential for the standards for functional quality of service. Int J Serv Stand 2014; 9(1): 67-83. https://doi.org/10.1504/IJSS.2014.061061

13. Using SERVQUAL for assessing and improving patient satisfaction at a rural health facility in Pakistan [Internet]. World Health Organization - Regional Office for the Eastern Mediterranean: https://www.emro.who.int/emhj-volume-14-2008/volume-14-issue-2/using-servqual-for-assessing-and-improving-patient-satisfaction-at-a-rural-health-facility-in-pakistan.html. /2023

14. Farajat M, Mesned A. Evaluation of service quality of a Saudi cardiac center: patients are the best judges. World J Res Rev 2018; 7: 12-18.

15. Kanwal K, Rafi Y, Sarwar MZ, Naqi SA. Quality of Medical Care: Patient experiences and satisfaction at tertiary care setting in Public Hospital in Pakistan. Pak J Med Health Sci 2019; 13(1): 115-118. https://pjmhsonline.com/2019/jan_march/pdf/115.pdf

16. Mustafa R, Mahboob U, Khan RA, Anjum A. Impact of language barriers in doctor–patient relationship: a qualitative study. Pak J Med Sci 2023; 39(1): 41. https://doi.org/10.12669/pjms.39.1.5805

17. Alam MZ, Aman R, Hafizullah M. Patient awareness survey in a tertiary care hospital. J Postgrad Med Inst 2011; 22(4). https://www.jpmi.org.pk/index.php/jpmi/article/view/1100

18. Van Veghel D, Soliman-Hamad M, Schulz DN, Cost B, Simmers TA, Dekker LR. Improving clinical outcomes and patient satisfaction among patients with coronary artery disease: an example of enhancing regional integration between a cardiac centre and a referring hospital. BMC Health Serv Res 2020; 20: 1-8. https://doi.org/10.1186/s12913-020-05352-w

19. Shah JA, Kumar R, Solangi BA, Khan KA, Ahmed T, Khowaja S, et al. One-year major adverse cardiovascular events among same-day discharged patients after primary percutaneous coronary intervention at a tertiary care cardiac centre in Karachi, Pakistan: a prospective observational study. BMJ open 2023; 13(4): e067971. http://dx.doi.org/10.1136/bmjopen-2022-067971

20. Khan FR, Nawaz T, Amin M, Sajjad W, Ali H, Hussain S. The Impact of Age, Comorbidities, and Discharge Timing on Clinical Outcomes Following Elective Percutaneous Coronary Intervention. Cureus 2024; 16(2): e55291. https://doi.org/10.7759%2Fcureus.55291

21. Irfan SM, Ijaz A, Farooq MM. Patient satisfaction and service quality of public hospitals in Pakistan: an empirical assessment. Middle-east journal of scientific research 2012; 12(6): 870–877.

22. Rehaman B, Husnain M. The impact of service quality dimensions on patient satisfaction in the private healthcare industry in Pakistan. J Hosp Med Manage 2018; 4(1): 1–8.

23. Li M, Lowrie DB, Huang C-Y, Lu X-C, Zhu Y-C, Wu X-H, et al. Evaluating patients' perception of service quality at hospitals in nine Chinese cities by use of the ServQual scale. Asian Pac J Trop Biomed 2015; 5(6): 497–504.

https://doi.org/10.1016/j.apjtb.2015.02.003

24. Mendoza Aldana J, Piechulek H, al-Sabir A. Client satisfaction and quality of health care in rural Bangladesh. Bull World Health Organ. 2001; 79(6): 512–517.

25. Alrasheedi KF, Al-Mohaithef M, Edrees HH, Chandramohan S. The association between wait times and patient satisfaction: findings from primary health centers in the Kingdom of Saudi Arabia. Health Serv Res Manag Epidemiol 2019; 6: 2333392819861246. https://doi.org/10.1177/2333392819861246

26. Namdar P, YekeFallah L, Jalalian F, Barikani A, Razaghpoor A. Improving door-to-balloon time for patients with acute ST-elevation myocardial infarction: A controlled clinical trial. Curr Probl Cardiol 2021; 46(3): 100674. http://dx.doi.org/10.1016/j.cpcardiol.2020.100674

....