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A Measurement of the Quality of Health Care Based on Its Performance

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ABSTRACT

Background: In recent years, the healthcare system has undergone rapid transformation. Nonetheless, a recent Quality and Patient Safety Report highlighted declining levels of patient safety and quality culture among healthcare professionals. This highlights the importance of assessing care quality and patient safety from the perspectives of both patients and healthcare professionals.

Objectives: The purpose of this study was to investigate (1) patients' and healthcare professionals' perspectives on overall quality of care and patient safety standards at two tertiary hospitals, as well as (2) which demographic characteristics are related to overall quality of care and patient safety.

Methods: A cross-sectional research design was used. The Revised Humane Caring Scale and the Healthcare Professional Core Competency Instrument were used to collect data on two items: overall quality of care and patient safety. Questionnaires were distributed to (1) patients (n = 600) and (2) healthcare professionals (nurses and physicians) (n = 246) in three departments (medical, surgical, and obstetrics and gynecology) at two tertiary hospitals between the end of 2018 and the beginning of 2019. The data was analyzed using descriptive statistics and binary logistic regression.

Results: The questionnaires were completed by 367 patients and 140 healthcare professionals, representing response rates of 61.2% and 56.9%, respectively. Overall, healthcare professionals rated quality of care (M = 4.36; SD = 0.720) and patient safety (M = 4.39; SD = 0.675) slightly higher than patients (M = 4.23; SD = 0.706), (M = 4.22; SD = 0.709). The study found a link between hospital variables and overall quality of care (OR = 0.095; 95% CI = 0.016-0.551; p = 0.009) and patient safety (OR = 0.153; 95% CI = 0.027-0.854; p = 0.032) among healthcare professionals. Furthermore, an association was discovered between the admission/work area and the participants' perspectives on the quality of care (patients, OR = 0.257; 95% CI = 0.072-0.916; p = 0.036; professionals, OR = 0.093; 95% CI = 0.009-0.959; p = 0.046).

Conclusions: Patients and healthcare professionals both rated the quality of care and patient safety as excellent, with only minor differences indicating a high level of patient satisfaction and competent healthcare delivery professionals. Such perspectives can offer valuable and complementary insights into how to improve the overall standards of healthcare delivery systems.

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BACKGROUND

Quality of care and patient safety are undeniably two distinct goals for the world's leading healthcare systems [1-3]. These goals remain at the top of the priority list for healthcare regulators and policymakers [4]. In order to implement a quality assurance strategy, the Ministry of Health (MOH) established the Department of Quality and Patient Safety in regional hospitals in 2007 [5]. In addition, in 2015, it implemented the Patient Safety Friendly Hospital Initiative (PSFHI) to promote an inclusive and integrative healthcare system [6]. Such efforts have significantly improved healthcare outcomes, for example, by reducing child mortality rates by 72% from 1990 to 2013 and maternal mortality rates by 55% from 1990 to 2013 [5, 7].

Although the World Health Organization (WHO) ranked

the healthcare system as one of the ten best in the world in 2012 [8,] a recent Report of Quality and Patient Safety (RQPS) highlighted a decreased level of patient safety and quality of care culture among healthcare professionals (HCPs) [9]. The report advocated for a comprehensive assessment of patient safety and quality of care that included the perspectives of both HCPs (as service providers) and patients (as service users). According to the report, HCPs typically focus on long-term and sustainable solutions while managing service and delivery costs [10]. Their core competencies and broader technical excellence from the perspective of healthcare providers frequently play a pivotal role in the overall classification of quality of care and patient safety [3, 11-13].

Patients, on the other hand, prefer short-term comforts [14]. Their perspectives are typically based on the overall healthcare system, practice type, and personal and clinical skills of care providers [13, 15, 16]. This explains why international organizations such as the Council of Europe (CoE) [17], the World Health Organization (WHO) [3], and the United States (US) Institute of Medicine (IOM) [18] emphasize that patients' perspectives on quality care are important in addition to providers' perspectives in order to find the right balance between two perspectives and provide additional insight into areas where change is required. As a result, this study is part of a larger study aimed at (1) consolidating patients' and HCPs' (nurses and physicians) perspectives on quality of care and patient safety at two tertiary hospitals [19] and (2) identifying the participant characteristics most related to quality of care and patient safety. The findings of this study will provide valuable and complementary insights for improving overall healthcare delivery system standards.

METHODS

Study context

This study was conducted in Riyadh, a high-income Arab country of 24.6 million people, with the capital city of housing one-third of the population [20]. Since 1970, it has undergone rapid economic and social transformation, resulting in higher living standards. MOH had 50 hospitals, 5049 beds, 269 governmental health centers, clinics, and dispensaries, and 1254 private clinics as of 2019. Doctors and nurses totaled 6419 and 14,491 people, respectively. In 2019, there were 21 doctors and 44 nurses for every 10,000 people in the country, with a nurse-to-doctor ratio of 2:1. Healthcare system is distinguished by its universal coverage for both citizens and expatriates, and it is comprised of both the public and private sectors. Healthcare is provided primarily in government-owned and operated facilities, which account for approximately 81.1% of total health expenditure (THE), providing 83.1% of hospitals, 92.5% of hospital beds, 62.2% of all outpatient services, and 94.5% of all inpatient services [21].

Design

The study was carried out using a cross-sectional design. Strengthening the Reporting of Observational studies in Epidemiology (STROBE) guidelines were used for study reporting [22].

Sample and Setting

This study included (1) adult patients and (2) all HCPs (nurses and physicians) from three departments (medical, surgical, and obstetrics and gynecology (OBG)) at two tertiary hospitals (A and B). Data was collected over a one-month period between the end of 2018 and the start of 2019. Power analysis determined that at least 313 respondents were required for hospital 'A' and 158 for hospital 'B', where the effect size (d = 0.5), = 0.05 and N was 6155 (4094 from hospital 'A' and 2061 from hospital 'B') discharged patients at two hospitals [21]. A convenience sample of 600 adult patients admitted to hospitals A and B was used to collect patient data (400 and 200, respectively). To reduce the possibility of bias from convenience sampling, the authors enrolled more people than the minimum required sample size and increased participant follow-up and reminders.

HCPs were recruited through proportional stratified sampling of 246 professionals (139 nurses and 107 physicians) who worked at the two hospitals. The sample size for HCPs was taken from the primary study data that covered all of.

Study Instruments

Data for this study were gathered using two items: overall quality of care and patient safety, which were incorporated into the Revised Humane Caring Scale (RHCS) and the Healthcare Professional Core Competency Instrument (HPCCI), respectively, for patients and HCPs [23-25]. The authors created the above two items and piloted them as part of a larger study with the entire RHCS and HPCCI instruments using convenience sampling of patients (n = 30) and HCPs (n = 56) at a tertiary hospital. The HPCCI, which consists of 11 subscales with 81 items, was derived from valid and reliable tools, and permission to use the tools was granted by their creators. The RHCS, which consists of seven subscales with 46 items each, was translated from English to Arabic and backwards by experts in this study in. The tool required no changes as a result of the pilot. The two items in the questionnaires distributed to patients and HCPs were rated using a 5-point Likert scale (1 = Failing, 2 = Poor, 3 = Acceptable, 4 = Very Good, 5 = Excellent). A score of 1 was considered to indicate poor perceptions of quality of care and patient safety, while a score of 5 indicated excellent levels.

Data Collection

The principal researcher collaborated closely with the two target hospitals' research assistants, explaining the scope of the study and the data collection process. The research assistants were given a number of questionnaires as well

as fact sheets to distribute to both target groups: patients and HCPs, over a one-month period. The completed questionnaires were placed in envelopes and placed in locked boxes assigned to each unit. During the study period, researcher assistants in both institutions delivered a verbal reminder to the target groups. Participants were free to leave the study at any time.

Data Analysis

Descriptive statistics were used to analyze the data (frequency, percentage, mean value, and standard deviation). The statistical mean was the parameter used to assess overall care quality and patient safety. A mean score of 1 represented the lowest possible score, while a mean score of 5 represented the highest possible score. A mean value of 4 or higher on this scale range was considered 'excellent.' This value reflects best practices based on the literature and magnet hospital assessment scales, with 4 indicating compliance with Magnet standards [26]. For both patients and HCPs, binary logistic regression analysis was used to determine the relationships between the dependent variables (overall quality of care and patient safety) and the independent variables (demographic characteristics). The variables for quality of care and patient safety were dichotomized; 'excellent or very good' was recorded as 1, and 'acceptable, poor, and failing' was recorded as 0. To understand how the predictors were associated with the outcomes, the P value (P), odds ratio (OR), and 95% confidence interval (CI) of the OR were calculated in this analysis. Multivariate and univariate analyses were carried out. The Statistical Package for the Social Sciences computer program was used to analyze the data (SPSS version 27.0).

RESULTS

Participants' demographic characteristics

The overall patient response rate was 61.2% (367 of 600 targets), with 218 patients (59.4%) from hospital A and 149 (40.6%) from hospital B. The overall response rate for HCPs was 56.9% (140 of 246 targets), with 65 professionals (46.4%) from hospital A and 75 (53.6%) from hospital B. (Table 1). Less than 30% of the patients and more than 50% of the staff were between the ages of 30 and 40. The majority of patients and professionals were female: 58.5 and 75.5%, respectively. The majority of patients (93% were i citizens), and the response rate of i staff was slightly higher (3.6%) than that of expatriates.

Table 1. Participants' demographic characteristics

Patients				Healthcare Professionals			
		n	%			n	%
Hospital	A	218	59.4	Hospital	A	65	46.4
	B	149	40.6		B	75	53.6
				Profession	Nurse	84	60.0
					Physician	56	40.0
Age in (years)	< 30	119	35.6	Age in (years)	< 30	28	24.6
	30–40	94	28.1		30–40	59	51.8
	> 40	121	36.2		> 40	27	23.7
Gender	Female	210	58.5	Gender	Female	105	75.5
	Male	149	41.5		Male	34	24.5
Ethnicity	i	332	93.0	Ethnicity	i	72	51.8
	Non-i	25	7.0		Non-i	67	48.2
Living	Alone	39	11.3	Position	Clinician	84	78.5
	With family	305	88.7		Management	4	3.7
Education	Post-secondary school education	140	40.0		Both	19	17.8
	Basic level of education	210	60.0	Work experience	< 8 years	41	34.2
Occupational status	Un-employed	154	43.9		8–15 years	44	36.7
	Employed	159	45.3		> 15 year	35	29.2
	Retiree	38	10.8	Education	Diploma/resident	60/13	71.4/27.1
					Bachelor/specialist	23/34	27.4/70.8
					Master/adjunct	1/0	1.2/0
					Ph.D./docent	0/1	0/2.1
Admission area	Medical	117	34.7	Work area	Medical	34	25.0
	Surgical	156	46.3		Surgical	71	52.2
	Obstetrics and gynaecology	64	19.0		Obstetrics and gynaecology	31	22.8
Hospital admission	Planned	132	37.7				

	Emergency	218	62.3
Reason of admission	Examination	47	13.3
	Treatment	306	86.7
Stay duration	<=5 Days	192	67.6
	> 5 Days	92	32.4

Approximately 89% of the patients lived with their families, and 60% had a high school diploma. Approximately 45% of them were employed, while the remaining 44% were unemployed. Approximately 78.5% of HCPs worked at the bedside, with those who had dual roles, that is, clinical and management work, coming in second. Respondents from each working group of HCPs shared several characteristics. Approximately two-thirds of them had 8 to 15 years of experience. The majority of nurses and physicians (71.4%) and physicians (70.8%) had diplomas as their educational background/ qualifications.

The surgical department had approximately half of the patients (46.3%) and HCPs (52.2%), followed by the medical department. Almost two-thirds of the patients (62.3%) were admitted as an emergency and sought treatment rather than examination (87%). Two-thirds of the patients (67.6%) stayed in the hospital for less than five days. Participants' perspectives on care quality and patient safety Table 2 summarizes the participants' perspectives on patient safety and quality of care standards. Overall, both patient quality of care (M = 4.23; SD = 0.706; HCPs: M = 4.36; SD = 0.720) and patient safety (M = 4.22; SD = 0.709; HCPs: M = 4.39; SD = 0.675) were rated as excellent. However, the participants' perspectives on patient safety differed significantly (p = 0.013).

Table 2. Participants' perspectives on quality of care and patient safety

Participants								Overall quality of care						
	N	M	SD	SE	P	95% CI		N	M	SD	SE	P	95% CI	
Patients	348	4.23	0.706	0.038	0.068	4.16	4.30	351	4.22	0.709	0.038	0.013	4.15	4.29
HCPs	140	4.36	0.720	0.061		4.24	4.48	140	4.39	0.675	0.057		4.28	4.50
Total	488	4.26	0.712	0.032		4.20	4.33	491	4.27	0.704	0.032		4.21	4.33

N Number of participants, *M* Mean, *SD* Standard deviation, *SE* Standard error, *P P* value, *CI* Confidence interval

The relationship between demographic factors and overall quality of care and patient safety. The association of hospital, age, gender, ethnicity, and admission/work area on overall quality of care and patient safety was investigated using a binary logistic regression analysis. These specific variables were chosen because they are present in both instruments (RHCS and HPCCI), allowing for a subsequent comparison. Table 3 shows that patients at hospital A (OR 0.622; 95% CI 0.271-1.424; p = 0.261) were less satisfied with the quality of care than those at hospital B (OR 0.622; 95% CI 0.271-1.424; p = 0.261), but the difference was not statistically significant. In terms of quality of care, HCPs at hospital A (OR 0.095; 95% CI 0.016-0.551; p =0.009) were 90% less satisfied than those at hospital B. There was also a nonsignificant tendency for men to rate quality of care higher than women (OR 1.920; 95% CI 0.972-3.792; p = 0.060). The findings revealed that patients (p = 0.036) and HCPs (p = 0.046) were less satisfied with the quality of care in the medical department than in the OBG department.

Table 4 displays the findings of a binary logistic regression analysis conducted to determine

whether demographic characteristics of patients and HCPs explain the overall results.

Table 3 Binary logistic regression analysis of the quality of care

	Patients				Healthcare professionals			
	OR[a]	CI[b] of OR		P[c]	OR[a]	CI[b] of OR		P[c]
Hospital								
A	0.622	0.271	1.424	0.261	0.095	0.016	0.551	0.009
B	1	Ref.			1	Ref.		
Age in (years)								
< 30	0.860	0.408	1.813	0.692	0.131	0.010	1.707	0.121
30–40	1.901	0.755	4.791	0.173	0.148	0.014	1.606	0.116
> 40	1	Ref.		0.223	1	Ref.		0.269
Gender								
Male	1.920	0.972	3.792	0.060	1.496	0.255	8.790	0.656
Female	1	Ref.			1	Ref.		
Ethnicity								
	0.571	0.166	1.967	0.375	1.941	0.420	8.962	0.396
	1	Ref.			1	Ref.		
Admission/Work area								
Medical	0.257	0.072	0.916	0.036	0.093	0.009	0.959	0.046
Surgical	0.376	0.115	1.227	0.105	0.103	0.011	0.999	0.050
Obstetrics and gynaecology	1	Ref.		0.110	1	Ref.		0.119
Classification percentage correct	83.3%				84.5%			
-2 Log likelihood	241.401[a]				72.160[a]			
Cox & Snell R Square	.076				.185			
Nagelkerke R Square	.128				.321			
Hosmer and Lemeshow	0.528				0.338			

[a]Odds ratio
[b]95% confidence interval of odds ratio
[c]P value (level of significance)

Patient safety standards are perceived to be excellent. There were no statistically significant differences in patients' perspectives on patient safety standards at either hospital; however, patients in hospital A were less satisfied than those in hospital B (OR 0.659; 95% CI 0.298-1.457; p = 0.303). Furthermore, HCPs at hospital A were 85% less satisfied with patient safety standards than HCPs at hospital B (OR 0.153; 95% CI 0.027-0.854; p = 0.032). Men had a nonsignificant tendency to score higher for patient safety standards than women (OR 1.856; 95% CI 0.955-3.606; p = 0.068). Patients were less satisfied with safety in the medical department than in the OBG department (p = 0.066), according to the findings.

DISCUSSION

The study had two goals: first, to investigate both patients' and HCPs' perspectives on overall quality of care and patient safety standards at two tertiary hospitals, and second, to investigate the relationship of demographic characteristics with overall quality of care and patient safety. The study's main findings indicated that patient safety and quality of care were rated relatively high, indicating competent healthcare delivery professionals and a high level of patient satisfaction.

Views on overall care quality and patient safety, the preceding findings show that patients rated both quality of care and patient safety as excellent (4.22 and 4.23, respectively). This indicates that patients recognized and valued the healthcare services provided by HCPs. This not only improves their satisfaction and trust in the healthcare system, but it may also increase their willingness to accept treatment plans and procedures. This, in turn, may help to speed up patient recovery and increase the total value delivered per medical resource and intervention [27].

HCPs also rated patient safety and quality of care as excellent (4.39 and 4.36, respectively). This may reflect HCPs' perceptions of themselves as skilled professionals who are well-rounded in core competencies, implement the quality assurance strategy, and put the Patient Safety Friendly Hospital Initiative (PSFHI) into practice [4, 6].

It is worth noting that HCPs rated themselves slightly higher than patients in terms of both quality of care and patient safety. This finding is consistent with the findings of Miranda et al. [28], who found that healthcare providers were more confident in their services. The following factors could explain this optimism: First, due to cultural differences, patients may not express their concerns about care; second, HCPs may believe they provide high-quality care [29]. Zhao et al. [30] supported this finding by stating that nurses believed they provided holistic care, whereas patients perceived that quality care interfered with their privacy and sleep duration.

	Patients				Healthcare professionals			
	OR[a]	CI[b] of OR		P[c]	OR[a]	CI[b] of OR		P[c]
Hospital								
A	0.659	0.298	1.457	0.303	0.153	0.027	0.854	0.032
B	1	Ref.			1	Ref.		
Age in (years)								
<30	0.967	0.463	2.022	0.929	0.273	0.022	3.348	0.310
30–40	1.623	0.683	3.859	0.273	0.399	0.038	4.226	0.445
>40	1	Ref.		0.445	1	Ref.		0.589
Gender								
Male	1.856	0.955	3.606	0.068	1.184	0.197	7.117	0.853
Female	1	Ref.			1	Ref.		
Ethnicity								
	0.560	0.163	1.929	0.358	0.876	0.171	4.481	0.873
	1	Ref.			1	Ref.		
Admission/work area								
Medical	0.331	0.101	1.077	0.066	0.289	0.027	3.083	0.304
Surgical	0.435	0.147	1.288	0.133	0.167	0.018	1.579	0.118
Obstetrics and gynaecology	1	Ref.		0.185	1	Ref.		0.275
Classification percentage correct	82.3%				88.2%			
2 Log likelihood	254.335[a]				66.644[a]			
Cox & Snell R Square	.065				.114			
Nagelkerke R Square	.107				.220			
Hosmer and Lemeshow	1.000				0.249			

[a]Odds ratio
[b]95% confidence interval of odds ratio
[c]p value (level of significance)

The binary logistic regression analysis for this study showed an association of overall patient safety and quality of care with demographic characteristics (hospital, age, gender, ethnicity, and admission/work area). HCPsat hospital B rated the overall quality of care and patient safety higher than did HCPs at hospital A. This might be due to the heavier workload in hospital A because it is a specialized facility for medical and chronic cases withlong durations of hospitalizations.

The findings of this study showed a significant difference in the overall quality of care among patients and HCPs in the medical department. This result matches the findings of Abuosi [31], who stated that nurses and patients had different views on quality care because they understood and characterised it differently.

This study provides meaningful insights into the

perspectives of patients and HCPs on quality of care and patient safety. Such insights can be useful for currentand future projects that the MOH is spearheading in line with the Sultanate's Health Vision 2050 [41].

STRENGTHS AND LIMITATIONS

healthcare institutions have been implementing quality assurance and patient safety strategies for several years, which may explain the positive findings. This should especially encourage countries that have yet to implement these strategies. This study, however, has some limitations. First, it concentrated on only two variables: overall quality of care and patient safety, as well as their relationship with demographic characteristics. Second, data were collected from only three departments at two hospitals, which may limit the study's generalizability. Although acceptable, the response rate for both target groups could have been higher [32, 33]. Third, quality of care and patient safety are broad concepts that are influenced by a variety of factors and cannot be adequately explored using self-assessment methods alone. As a result, interviews and focus group discussions with patients and HCPs would provide more insight into this area.

CONCLUSIONS

This study looked into the perspectives of patients and healthcare providers on quality of care and patient safety. According to the findings, both patients and HCPs rated the quality of care and patient safety as excellent in comparison to magnet hospital standards. As a result, patients are satisfied with the levels of the healthcare delivery system, and they recognize and value the healthcare services provided to them. This may also indicate that HCPs have broad core competencies and use appropriate quality assurance strategies and practices.

Variables in the hospital and admission/work area contributed to overall quality of care and patient safety. These perspectives can be used to improve healthcare delivery models in accordance with the health Vision 2030.

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