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Public-Private Partnership in Healthcare: An Analysis of Parents' Perceived Care Quality in Pakistan's Twin Cities Hospitals, Islamabad and Rawalpindi – A Comparative Cross-Sectional Study

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ABSTRACT

Introduction: Pakistanis belonging to lower socioeconomic backgrounds are attracted to higher-cost private healthcare facilities because they believe that the quality of service is superior. This creates a cycle of poverty and illness. Urgent measures must be implemented to enhance the quality of public hospitals perceived by population. This study investigates how parents of pediatric patients admitted to two government hospitals evaluate the varying quality of care.

Materials and Methods: Between October 2022 and February 2023, a comparative, cross-sectional, questionnaire-based study (based on HEALTHQUAL model) was conducted at two government medical college hospitals in the twin cities of Islamabad and Rawalpindi: one operated directly by the government under the Public Hospital model (PH-model), and the other under the Private-Public Partnership (PPP) model. The eligible inpatients were 115 from the hospital using PH model and 145 from the hospital using PPP model. Patients who died (6 in PH and 15 in PPP) or left against medical advice (LAMA) (11 in PH and 5 in PPP) were excluded. Three forms from the PPP model hospital and four incomplete forms from the PH were also rejected. Respondents rated the following domains on a scale of 1 to 5 (Likert scale): Empathy, tangibility, safety, efficiency, and improvement of care services. Additionally, respondents rated their overall satisfaction on a scale of 1 to 10. On a scale of 1 to 5, a rating of more than 4 in each domain was considered good. An 8 or higher on a scale of 1 to 10 indicated enjoyment.

Results: The responders from the hospital using the PPP-model were much more satisfied compared to those from the hospital using the PH-model. The satisfaction rate was 91% (n=132) for the PPP-model hospital, whereas it was only 30% (n=35) for the PH-model hospital. This difference was statistically significant with a p-value of less than .001. Even after accounting for sex, age-group, family type, maternal education, socioeconomic status and days of hospital-stay, the relationship remained significant (O.R.(CI) = 23.59 (16.12-34.47); $p < .001$) according to the binary logistic regression model. PPP-model was superior to PH-model in all dimensions of HEALTHQUAL based questionnaire. It reported (mean \pm SD, p-value for PPP vs PH) for empathy (4.09 \pm 0.48 vs 3.20 \pm 0.49, $p < 0.0001$), tangibility (4.20 \pm 0.51 vs 3.01 \pm 0.52, $p < 0.0001$), safety (4.30 \pm 0.48 vs 3.11 \pm 0.50, $p < 0.0001$), efficiency (4.41 \pm 0.51 vs 2.90 \pm 0.53, $p < 0.0001$), and improvement of care services (4.50 \pm 0.52 vs 3.02 \pm 0.53, $p < 0.0001$).

Conclusion: Based on the satisfaction and perception ratings of the respondents, hospitals that implemented the PPP model were shown to have a higher perceived quality of care. This strategy could be repeated in developing nations to bring patients from lower socioeconomic backgrounds to more affordable tertiary-care public facilities.

Keywords: Public-Private Partnership, PPP, Public hospitals, Pediatric, Patient satisfaction, cross-sectional

INTRODUCTION:

The spending on patients in public hospitals in Pakistan is lower compared to that in private hospitals. Conversely, there is a prevailing belief that care provided in private facilities is of superior quality [1]. People receiving care in public hospitals express dissatisfaction due to prolonged waiting periods, insufficient infrastructure, and excessive overcrowding [2]. Patients' decision to seek care at private facilities is influenced by these factors, despite the higher cost [3]. There are two methods to manage expenses: selling assets or obtaining a loan with interest [1]. The poverty of the destitute is worsened due to these expenses [4]. Improving the perceived quality of public hospitals could halt this progression. Government district hospitals offer complimentary or significantly reduced-cost advanced medical treatment to the local community. Only a limited number of these district hospitals have been converted into government medical institutions. Several of these institutions are now

undergoing incremental improvements to handle the scarcity of physicians and provide superior quality medical care. The improvement would be supported by a private partnership (PPP) strategy in case resources become limited [5-7]. The goal of this research was to determine whether parents of pediatric patients admitted to two medical college hospitals in Pakistan's twin cities of Islamabad and Rawalpindi, one managed under the PPP model and the other directly run by the government (PH model), had varying perceptions regarding the quality of care.

MATERIALS AND METHODS

A cross-sectional design was implemented in two tertiary care medical college hospitals situated in the twin cities of Rawalpindi and Islamabad, Pakistan. Although the private medical college provided regular services, the government retained administrative control over the Public Private Partnership (PPP) Model hospital. Conversely, the hospital operating under the Public Health (PH) Model was completely under the control of the government. The sample was subjected to convenience sampling. Patients admitted on weekdays between 10 a.m. and 12 p.m. were enrolled. Data was collected between October 2022 and February 2023 from parents of hospitalized patients who completed pretested questionnaires, with the consent of the institutional ethical committee. The parents of the patients who were enrolled gave their informed consent. The study did not include parents of patients who died (6 in PH and 15 in PPP) or parents who left against medical advice (11 in PH and 5 in PPP). In addition, the incomplete forms from the PPP model (3) and PH (4) hospitals were excluded. When the time came to incorporate the patients into the study, a total of 115 inpatients from the PH model hospital and 145 from the PPP model hospital met the criteria. Patients admitted through different modes are summarized in (Figure 1). For the English version of the questionnaire, version that was formed by five dimensions established from HEALTHQUAL model's validated instrument [8].

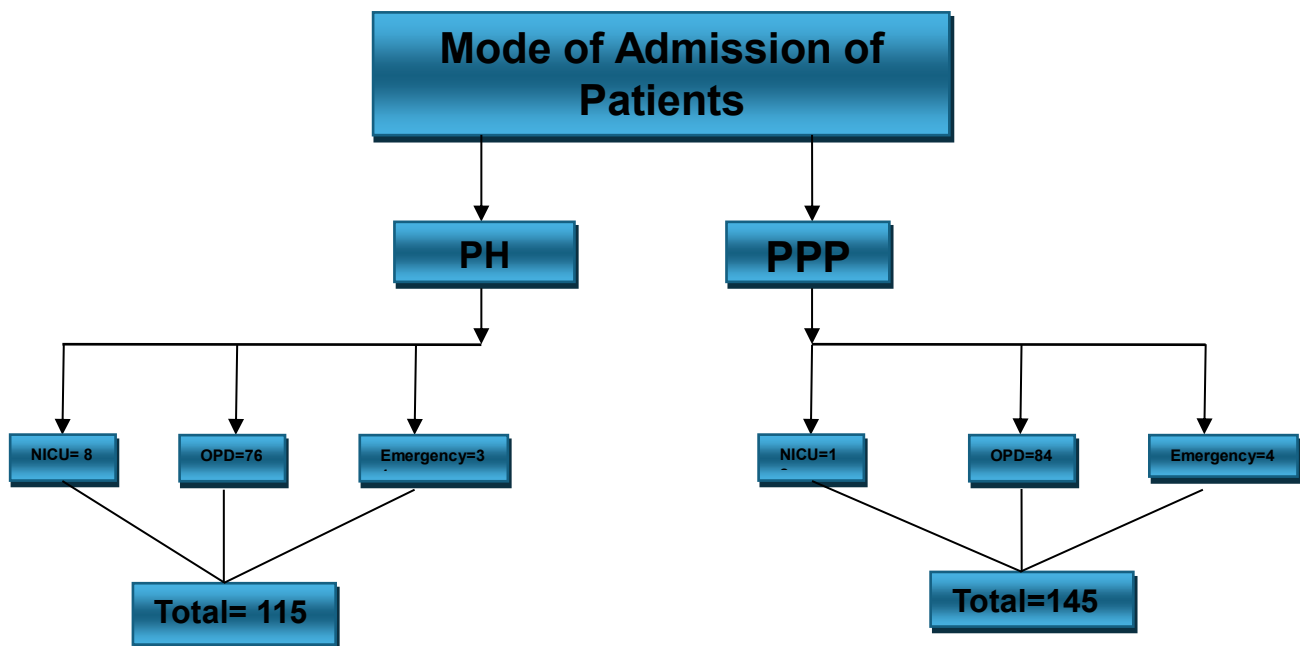


Figure 1: Mode of admission of patients .

The HEALTHQUAL model is a versatile framework structurally conceived for measuring the quality of healthcare institutions. It is comprised of various dimensions which reflects on different elements of patient care and healthcare environment. This questionnaire was designed to check the perceived quality of care at Public-Private Partnership (PPP) and Public Health (PH) model hospitals in Islamabad/Rawalpindi using HEALTHQUAL. It included the following dimensions: 1) Empathy: Empathy consists of the level at which medical personnel exhibit compassion and individualization, despite the situational restraints that they may be exposed to as health workers. 2) Tangibility: This domain covered the outer appearance of service facilities, including hospitals and equipment for performance along professionalism of medical personnel. The extent includes service providers' formality and being well-dressed. 3) Safety: This examines how well a hospital protects its patients from accidents, injuries, and infections. All the elements of sanitisation, following strict rules safety procedure, and taking necessary steps to prevent from infection. 4) Efficiency: This indicator measures how well the hospital can provide timely health care while ensuring that quality is maximized. It includes variables like waiting times, speed of service delivery times which in turn encompasses the overall process productivity in its functioning. 5) Improvement of care services: this Measures the hospital's efforts on improving the care services they currently provide This process involves training employees, innovating with the

implementation of advanced methods, and sustaining quality in patient care. In the meanwhile, the formed questionnaire was translated in Urdu as Urdu was primary language which was spoken by participants.

Scores of each dimension were given in Likert scale in this study [9]. Parents's impressions in each of these dimensions were evaluated using a 5-point scale ranging from 1 to 5. Furthermore, the parents were requested to assess their overall level of satisfaction on a scale ranging from 1 to 10. A rating of four or higher on a five-point rating system was considered favourable in every domain. When parents of patients rated their satisfaction level as eight or higher on a ten-point scale, it was considered that they were typically content. The questionnaire was completed by parents of pediatric patients at the time of discharge, ensuring their identity was hidden. If the parents were incapable of completing it independently, a medically trained social professional provided assistance.

Statistical analysis

The data was inputted into SPSS version 23.3. The descriptive statistics were computed, which included the means and percentages. The chi-square test was used to compare demographic characteristics between the two hospital models. The independent sample t-test was used to compare the satisfaction levels between the two hospital models it was employed to compare the mean satisfaction scores reported by parents in each domain evaluated on a scale of 1 to 5 and the overall happiness on a scale of 1 to 10.

The t-test and chi-square test were utilized to compare the data obtained from the two institutions. A binary logistic regression analysis was conducted to ascertain if the patient satisfaction difference in the two hospitals could be attributed to sociodemographic characteristics. The type of hospital was treated as the dependent variable, while several demographic parameters were evaluated as covariates of overall satisfaction. The age group was divided into two categories: newborns and children. The socioeconomic level was categorized as either upper or lower. Additionally, hospital stays were restricted to a maximum of 10 days. Binary logistic regression was used to determine the predictive value of each individual perceptual domain on overall happiness in each institution. The variable being measured was the level of satisfaction, while the factors being considered were the several areas of perception. A p-value of less than 0.05 was considered to be statistically significance.

RESULTS

Socio-demographic features of inpatients enrolled are depicted in Table 1.

Table 1: Comparison of the study population's demographic characteristics and overall satisfaction scores between hospitals using the PH model and the PPP model.

Features		PPP Model Frequency (%) N = 145	PH Model Frequency (%) N = 115	P value
Age group	Neonate	49 (34)	40 (35)	0.96
	Child	96 (66)	75 (65)	
Sex, Male		91 (63)	71 (62)	0.57
Education (high-school and above)	Father	58 (40)	32 (28)	<.001
	Mother	56 (38)	22 (19)	
Socioeconomic class	Upper	1 (1)	0 (0)	<.001
	Upper middle	9 (6)	4 (3)	
	Lower middle	35 (24)	43 (37)	
	Upper lower	97 (67)	67 (59)	
	Lower	3 (2)	1 (1)	
Family type, nuclear		111 (76)	61 (53)	<.001
Hospital stay >10 days		76 (52)	53 (46)	0.03
Outcome	Cured	136 (94)	109 (95)	0.64
	Not cured	5 (3)	4 (3)	
	Referred	4 (3)	2 (2)	
Overall satisfaction (rating >8/10)		132 (91)	35 (30)	<.001
Visit hospital again		137 (94)	84 (73)	.001
Recommended again		141 (97)	83 (72)	<.001

The sex, age range, and outcomes of inpatients at the two hospitals did not differ statistically. Parents of pediatric patients admitted to a PPP model hospital had greater levels of parental education and socioeconomic class. Overall satisfaction was also greater in PPP model hospital as compared to PH model hospital. At the PPP model hospital, the length of stay was greater.

Even after controlling for sex, age group, family type, education level, socioeconomic class, and length of hospital stay using a binary logistic regression model, the parents of inpatients at the PPP model hospital reported significantly higher levels of satisfaction than those at the PH model hospital {O.R. (CI)=23.59 (16.12-34.47); p<0.001}.

Table 2 compares mean scores for healthcare dimensions between the two hospitals.

Table 2: Comparison of Mean Scores for Healthcare Dimensions between Public Health (PH) Model Hospitals and Public-Private Partnership (PPP) Model Hospitals

Dimension	PH Mean ± SD	PPP Mean ± SD	t-statistic	p-value
Empathy	3.20 ± 0.49	4.09 ± 0.48	-13.76	<0.0001
Tangibility	3.01 ± 0.52	4.20 ± 0.51	-14.79	<0.0001
Safety	3.11 ± 0.50	4.30 ± 0.48	-15.59	<0.0001
Efficiency	2.90 ± 0.53	4.41 ± 0.51	-18.36	<0.0001
Improvement	3.02 ± 0.53	4.50 ± 0.52	-17.68	<0.0001

The results reveal that PPP hospitals significantly outperform PH hospitals in all dimensions. Empathy scores are higher in PPP hospitals (mean ± SD: 4.09 ± 0.48) compared to PH hospitals (mean ± SD: 3.20 ± 0.49), with a high significance ($p < 0.0001$). Similarly, tangibility, which measures the physical aspects of the hospital environment, is rated higher in PPP hospitals (mean ± SD: 4.20 ± 0.51) compared to PH hospitals (mean ± SD: 3.01 ± 0.52), ($p < 0.0001$). Safety scores are also significantly better in PPP hospitals (mean ± SD: 4.30 ± 0.48) than in PH hospitals (mean ± SD: 3.11 ± 0.50), ($p < 0.0001$). Efficiency, which reflects the promptness and effectiveness of care, shows a substantial difference with PPP hospitals scoring 4.41 ± 0.51 compared to 2.90 ± 0.53 in PH hospitals, ($p < 0.0001$). Finally, the dimension of improvement of care services is also higher in PPP hospitals (mean ± SD: 4.50 ± 0.52) compared to PH hospitals (mean ± SD: 3.02 ± 0.53), ($p < 0.0001$).

DISCUSSION

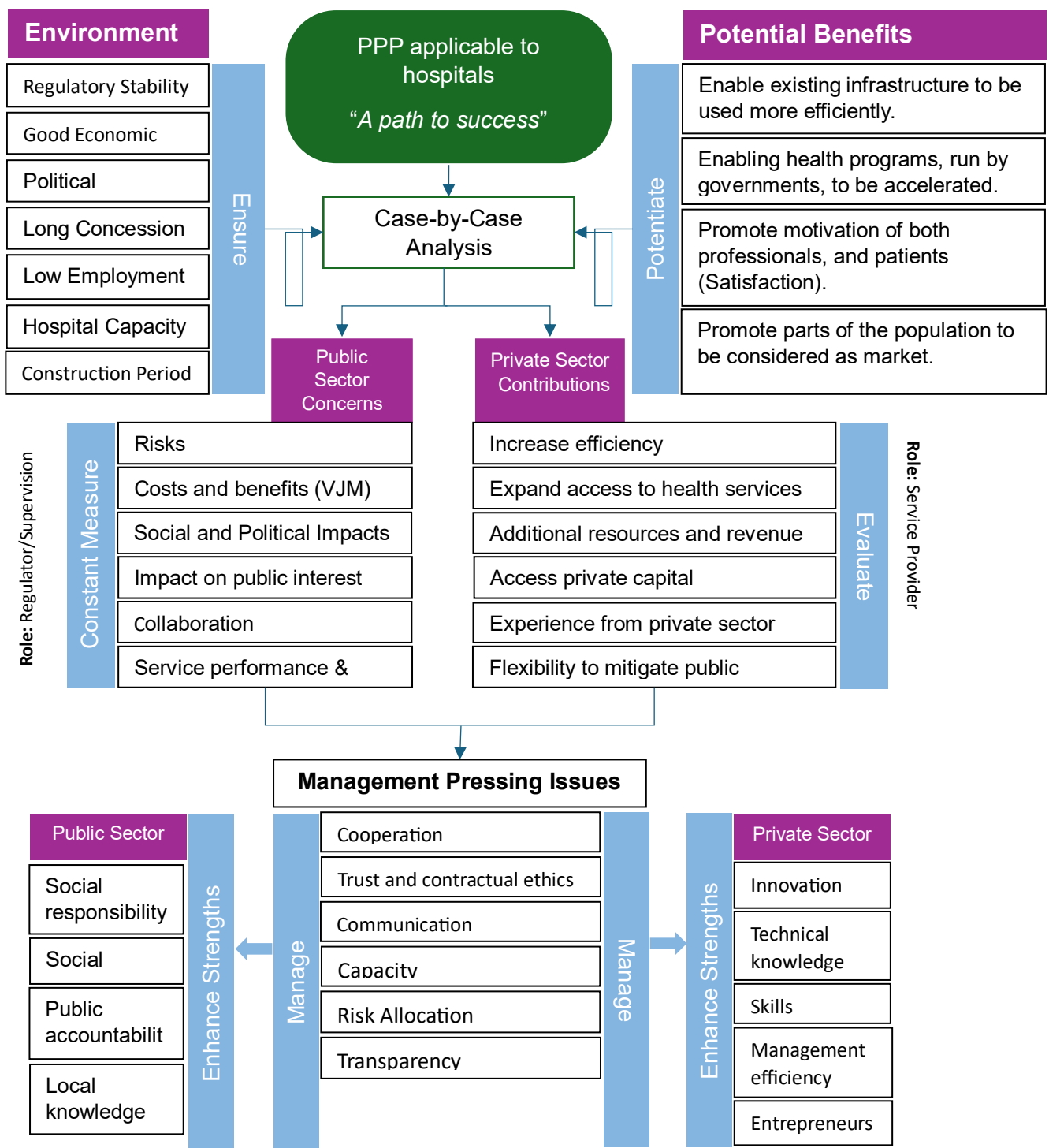
According to the beneficiaries' perceptions of the quality of care, the current study details how public-private partnerships, or PPPs, might enhance a public tertiary care hospital's operation. Parents whose children were inpatients reported a considerable increase in satisfaction with the PPP model government district hospital as opposed to the government-run, directly administered facility (PH model). These variations persisted even after the different demographic factors were taken into account, suggesting that the model had a beneficial impact on the quality of healthcare. The PPP model hospitals' respondents' overall satisfaction rate was 91%, which was comparable to the 93% recorded at an Indian private-for-profit facility [10]. It was similar to another Pakistani study [11].

One of the critical findings of this study is the higher levels of parental education and socioeconomic status among parents of pediatric population admitted to PPP model hospitals. These factors exert a large influence on the level of satisfaction because people belonging to higher levels of socioeconomic status have correspondingly more expectations and want better services in healthcare. This trend is witnessed in other studies from the region. Research from Bangladesh suggests that highly educated parents are more critical and have higher expectations about the quality of health care [12]. In addition, higher socioeconomic status is associated with an increased likelihood of the parent in having positive attitude towards education and as a result being satisfied with the services [13].

The HEALTHQUAL model enabled a comprehensive evaluation of a range of healthcare quality attributes such as empathy, tangibility, safety, efficacy, and improvement of care services. When compared with a hospital running under the Public Health (PH) model, the PPP model hospital did well in all these dimensions. PPP hospital had an average empathy score of 4.09 (on a scale of 1-5). This means that PH hospital had lower comments on empathy with its mean scores at 3.20. This is in line with some earlier research studies that highly emphasize patient-provider relations as key determinants of overall satisfaction [14,15]. In terms of tangibility in healthcare facilities, PPP hospital obtained a better rating (4.20) than PH hospital (3.01), considering factors like equipment status and staff expertise. A similar study conducted in Ghana [16] indicated that patient satisfaction was influenced by the level of facilities and equipment available at the hospitals. The various dimensions of safety including cleanliness and infection prevention measures varied appreciably between hospitals with PPP achieving 4:30 while PH scored 3:11. A systematic review emphasizes the correlation between hygiene in hospital settings and patient satisfaction [17]. The efficiency, which measures the timeliness and effectiveness of care, was much higher in the PPP hospital (4.41) compared to the PH hospital (2.90). Studies from other parts of world, such as France, have similarly found that reduced wait times and streamlined processes in PPP hospitals contribute to higher patient satisfaction [18]. A systematic review article is that the public sector commonly fails to treat patients with courtesy and speed [19]. PPP hospitals scored higher (4.50) on their commitment to continuous improvement of care services compared to PH hospitals (3.02). This dimension is crucial for long-term patient satisfaction and aligns with findings from healthcare systems in South Korea, where ongoing improvements are a significant determinant of patient perceptions of quality [20].

Several other studies have also supported PPP model-based hospitals being superior to PH model-based hospitals in terms of patient satisfaction [21, 22]. The results of this study suggest that PPP models can be an effective strategy for improving the quality of healthcare services in public hospitals. By leveraging the efficiencies and quality improvements often associated with private sector involvement, PPP models can address some of the persistent challenges in public healthcare systems, such as overcrowding, long wait times, and insufficient infrastructure.

In Pakistan, the public healthcare system is often criticized for its inefficiencies and inadequate service delivery [23]. Implementing PPP models could bridge the gap between public expectations and actual service delivery, as evidenced by the higher satisfaction scores in PPP model hospitals. This is particularly relevant in the context of limited public health funding and resources, which often lead to suboptimal healthcare experiences in purely public hospitals. Benefits of PPP have been summarised in (Figure 2)



Limitation

With a convenient sample of patients, this is a cross-sectional study. Distinct expectations among responders could be the cause of the observed disparities between the two hospitals. Given the questionnaire-based nature of the study, it is impossible to completely exclude out socially acceptable answers. Unfortunately, the use of a 5-point scale has somewhat made up for this shortcoming.

Conclusion

In conclusion, respondents' satisfaction and perception ratings showed that the PPP model hospital offered much higher perceived quality of healthcare. Other tertiary care public hospitals in poor nations could adopt this concept.

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We received none.

Conflict of Interest

Authors declared no conflict of interest.

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